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on the functioning of the European carbon market in 2025

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1. Introduction

2025 marked the 20th anniversary since the start of operation of the EU Emissions Trading System (EU ETS). The year saw an increase in the number of extreme weather events with devastating health, social and economic effects. It also capped the hottest 11-year period (2015-2025) on record[1], underscoring the need to reinforce climate mitigation measures, such as the EU ETS.

While consumption of coal continued to decrease in the EU as whole in 2025 and the supply of renewable energy remained stable[2], the supply of gas increased for the second consecutive year (+ 2.3%), with 88% of gas supply in the grid coming from imports[3].

The rapidly evolving economic and geopolitical context highlighted the benefit of the EU ETS in providing a clear, stable and long-term signal that guides EU economic operators away from fossil fuels, thus serving the EU's decarbonisation, energy security and competitiveness goals.

Despite energy price variations due to international conflicts, the system continued to deliver emissions reductions based on a robust carbon price and liquidity of allowances. Indicators show a well-functioning and resilient market where predictability was further improved following key legislative proposals[4] tabled by the European Commission to adapt the system up to 2040.

As the oldest and most mature compliance carbon market at global level, the EU ETS also serves as an example for other countries interested in designing and developing carbon markets, supporting decarbonisation not only in Europe but also abroad.

This report focuses on the latest developments of the EU ETS in 2025 and the first months of 2026. It is adopted in line with Articles 10(5) and 21(2) of the ETS Directive (Directive 2003/87/EC)[5]. The information provided is based mostly on data from the Union Registry and national reporting.

Main findings

The report shows that overall emissions covered by the EU ETS continued the downward trend observed over the past years. Taken together, emissions from power, industry, aviation and maritime transport have decreased by 2% compared to 2024. Emissions from the power

[1] State of the Global Climate report 2025, World Meteorological Organization (WMO): https://library.wmo.int/records/item/69807-state-of-the-global-climate-2025.

[2] In 2025, renewables made up 26.2% of energy consumed in the EU, up from 25.2% in 2024: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Renewable_energy_statistics.

[3] Eurostat Energy production and imports: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_production_and_imports#Natural_gas.

[4] Proposal of 17 July 2026 for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC and Decision (EU) 2015/1814 as regards driving competitiveness and cost-effective decarbonisation: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2026:616:FIN.

[5] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

sector and industrial installations dropped respectively by 1.7% and 3.3% compared to 2024. Emissions from maritime transport decreased by 4% while emissions from aviation grew by 0,2%, confirming the pressing need to decarbonise the aviation sector.

The lower emissions in the maritime sector can be largely attributed to increased consumption of sustainable fuels, which are zero rated under the EU ETS. The increase in the aviation sector would also have been higher if not offset by the growing use of Sustainable Aviation Fuels (SAF), which accounted for approximately 1.7 million tonnes of CO_2 savings. Without this contribution, emissions in the sector would have increased by 1.3% in 2025.

Market oversight confirms the smooth running of auctioning and trading on the primary and secondary market of the EU ETS. The auctions of emission allowances and trading dynamics remained largely stable compared to previous years. The average EU ETS allowance price in 2025 was EUR 73.43, varying between EUR 59.76 and EUR 84.60 throughout the year.

Revenues from the EU ETS increased further in 2025, rising up to EUR 43.2 billion (+11% compared to 2024), confirming the system's key role as a powerful financing engine. More than half of this amount (EUR 23.9 billion) went directly to EU Member States, allowing them to finance climate, energy and social measures to support households and companies in transitioning away from fossil fuels.

The remaining part of the revenues financed breakthrough innovation, solidarity, energy transition and energy security by providing €2.6 billion for the Innovation Fund and €6.5 billion for the Modernisation Fund. Auction revenues also supported the Recovery and Resilience Facility (RRF) to raise €20 billion for the REPowerEU Plan. The EUR 20 billion revenue target was reached in July 2026 after the auctioning of 278.5 million allowances.

For the first time in 2025, EUR 3.7 billion were raised also for the Social Climate Fund, to support vulnerable households and transport users during the transition to climate neutrality.

Finally, 2025 showed a very high compliance rate (99.5%) with the monitoring, reporting, verification and surrendering obligations of the EU ETS, confirming that over the past 20 years the EU system has become a robust and mature carbon market, stimulating investments in Europe's transition and modernisation.

2. A broad and efficient emissions coverage

2.1. Scope and recent developments

The EU ETS, which started operating in 2005, has developed significantly over the last 20 years. It currently applies in the 27 EU Member States, as well as in Iceland, Norway and Lichtenstein. Although the United Kingdom is no longer part of the system, electricity generation plants in Northern Ireland remain covered by it.

Initially focused on emissions from the power sector and big industrial installations, the scope of the EU ETS has progressively expanded to cover emissions from the different transport sectors. Aviation and maritime emissions are covered under ETS1, while emissions from road transport, together with emissions from the combustion of fuels in buildings and smaller industry, fall under a separate system (ETS2).

In 2025, ETS1 thus applied to more than 12.500 entities established across the 30 countries in its geographical scope and Northern Ireland. The total emissions from stationary installations, aviation and maritime sectors on which the carbon price was applied amounted to 1 163 million tonnes of $CO_{2e.,}$ representing about 37% of EU GHG emissions. With the addition of emissions covered under the new ETS2, the system will cover about 75% of EU GHG emissions.

2.1.1. Power and industrial installations

In 2025, the EU ETS covered more than 8 500 stationary installations. The majority of these (about 5 000 installations) were active in the heat and power sector, followed by industrial installations in the ceramics, paper, chemicals and glass sectors.

Emissions covered by the EU ETS include CO_2 emissions but also other greenhouse gases:

- N_2O (nitrous oxide) from nitric, adipic and glyoxylic acids and glyoxal production;
- PFCs (perfluorocarbons) from primary aluminium production.

In 2025, the total amount of emissions from stationary installations amounted to 1 013 Mt CO_{2eq}, representing a 2% decrease compared to 2005. Section 3.1 provides further details on these emissions trends.

As of 2024, installations for incinerating municipal waste monitor and report their emissions under the EU ETS. However, they are not yet required to surrender allowances for their emissions. Emissions from waste treatment are currently subject to national reduction targets under the Effort Sharing Regulation (Regulation 2018/842).

2.1.2. Aviation

Aviation transport accounts for around 3-4% of the EU's CO_2 emissions.

The EU ETS has regulated emissions from the aviation sector since 2012. Legally, under the EU ETS Directive, the system covers all outgoing flights from to the European Economic Area (EEA), and all incoming flights, unless exempted. The EU, however, decided to temporarily limit the scope of the EU ETS to flights within the EEA, to support the development of a global measure by the International Civil Aviation Organisation (ICAO).

CO_2 emissions from aircraft operators continued to slightly increase in 2025 compared to the preceding year. In 2025, fossil-fuel related CO_2 emissions from aviation amounted to 62.7 Mt (including 988 434 tons of operators administered by Switzerland), up from 62.6 Mt in 2024. This is an increase of around 0.2% since 2024, underlining the urgent need to decarbonise the aviation sector. The ReFuelEU Aviation Regulation sets a framework to increase the production and uptake of sustainable aviation fuels (SAF) in the EU. 1.7 million tonnes of CO_2 were saved due to the use of SAF, which is treated as zero-emission under the EU ETS.

In 2025, around 25.4 million allowances were issued in respect of aircraft operators in line with the limited scope of the EU ETS. To advance emission reductions in the sector, in 2025 50% fewer free allowances were allocated to aircraft operators than in 2023. The resulting number after the reductions amounted to 10.9 million allowances. Aircraft operators administered by national administrators in the EEA received a little more than 0.2 million Swiss allowances for free under the Swiss ETS. Aircraft operators received about 2.9 million allowances for the use of SAF. Approximately 11.6 million allowances were auctioned in 2025 in respect of aircraft operators.

The ETS carbon price already provides an incentive of around EUR 250 per tonne of SAF used, compared to the price of fossil kerosene through zero-rating. In 2025, the Commission started implementing an additional support mechanism under the EU ETS for the use of eligible sustainable aviation fuels uplifted on ETS routes. For each tonne of eligible fuel used on an ETS route, airlines can claim support from EUR500 up to EUR7000[6]. For 2025, the EU ETS incentive by zero rating SAF was worth around EUR 135 million. This was supplemented by dedicated ETS support of about 5.2 million allowances worth approximately EUR 430 million[7].

In a significant step to improve transparency, the Commission is publishing more data on aviation emissions, while protecting commercially sensitive data.

The analysis below is provided under Article 30(8) of the ETS Directive. This report includes, for the first time, additional information on short flights, private and business jets, the social impacts of the EU ETS Directive on the aviation sector and the connectivity of outermost regions (OMRs). More details can be found in the supporting study, impact assessment, and Annex 10 to the impact assessment on the revised ETS Directive proposed in July 2026.

[6] Commission Notice C/2026/3621, OJ C, C/2026/2992, 3.6.2026, ELI: http://data.europa.eu/eli/C/2026/2992/oj.

[7] Commission Decision of 8 September 2026, OJ C, C/2026/4894, 15.9.2026, ELI: http://data.europa.eu/eli/dec/C/2026/4894/oj. and Over €400 million in EU ETS support given to airlines for using sustainable aviation fuels in 2025 - Climate Action.

Regarding short flights, the EU ETS covers 96% of short-haul flights emissions. In 2019, flights under 1000 km produced 18% of CO_2 from departing EU/EEA flights, and short-haul traffic is expected to grow by 25% by 2040 compared with 2025[8]. Replacing short-haul flights with high-speed rail and ferries has the biggest potential to cut emissions on short-haul routes. Sustainable aviation fuel can also help, while electric, hybrid and hydrogen aircraft remain promising longer-term options.

Private and business jets, although accounting only for a small share of aviation emissions, emit 5 to 14 times more CO_2 per passenger than commercial flights and are backed by far greater financial resources. Under Eurocontrol's high-growth scenario, business aviation is projected to grow by 1.4% annually from 2024 to 2050[9]. The Commission therefore proposes to include private and business jets in the EU ETS (67% of private-jet emissions are currently exempt), while simplifying the rules for operators and exempting those with very low surrender obligations. As business aviation is used by only a small number of people, its impact on overall connectivity is limited.

Regarding social impacts of the EU ETS Directive on the aviation sector, modelling indicates that, by 2040, employment among EEA-based aircraft operators will have increased by 26%-28% compared with 2024. Additional SAF support could stimulate further investment and European SAF plants are projected to create 0.2–1.8 jobs per 100 tonnes of SAF produced annually. According to the model, although ticket prices rise across all segments, with the strongest relative effects seen on low-cost carrier fares, passenger demand continues to grow across all route types by more than 30% in 2040 compared to 2024. This indicates that underlying demand growth outweighs the dampening effect of higher fares. The impact on access to air travel for households of different income groups is assessed as marginal: ticket price to income ratios remains broadly stable over time, indicating that fare increases largely track projected income growth.

Regarding the connectivity of outermost regions (OMR), islands and remote territories, almost all of them recorded more flights in 2024 than in 2019. In the OMR, emissions from non-domestic EEA flights covered by the EU ETS rose by 14% between 2019 and 2024, exceeding 6% of total aviation-ETS emissions. The Commission proposes to no longer exempt those routes as of 2031. The EU ETS already includes special provisions to safeguard their air connectivity. Member States may designate socially necessary flights as public service obligations (PSOs) to preserve connectivity on routes that would otherwise be underserved. Currently, PSOs and airfare subsidies support routes from 70% of OMR and islands. In addition, airlines that use eligible SAF on flights departing from remote islands and OMR – even where the flight is not carbon-priced – can obtain ETS-financed SAF support covering 100% of the price differential between SAF and fossil kerosene.

2.1.3. Maritime transport

[8] European Commission, Commission Staff Working Document, Impact assessment report SWD(2026) 616 final, part 3/5, Brussels, 17/07/2026, available at: https://climate.ec.europa.eu/document/download/63c0103a-6b5f-4151-b117-b3c4b35b5d0e_en?filename=swd_2026_616_part_3_en.pdf;
[9] Eurocontrol, Eurocontrol Aviation Long-Term Outlook: Flights and CO_2 emissions forecast 2024-2050, 2024.

Maritime transport is a major emitter of greenhouse gases accounting for around 3% to 4% of the EU's CO_2 emissions. As of 1 January 2024, emissions from maritime transport activities are included in the EU ETS as part of the EU's overall strategy to decarbonise shipping. The system covers 50% of emissions from voyages starting or ending outside of the EEA and 100% of emissions that occur between two EEA ports and when ships are within an EEA port.

This extension of the EU ETS builds on the provisions in place for other sectors covered by the EU ETS system as well as the Maritime Monitoring, Reporting and Verification (MRV) Regulation. For 2024 and 2025, the EU ETS for maritime transport only covered CO_2 emissions, and will be extended to CH_4 and N_2O from 2026. For 2025, shipping companies reported, 87.4 $MtCO_2$ under the EU ETS scope which was around 4% lower than what reported for 2024, a decrease mainly due to the uptake of zero-rated sustainable fuels.

Shipping companies' obligation to surrender allowances is being introduced gradually, through a phase-in period lasting until 2026. During this period, shipping companies are required to surrender allowances corresponding to 40% of verified emissions reported for 2024, 70% of verified emissions reported for 2025 and, for emissions generated in 2026 onwards, 100% of the verified emissions covered by the EU ETS. A further reduction is made for ice-class vessels.

The surrendering requirements, after application of deductions and the phase-in coefficient for 2025 (of 70%), corresponded to 60.8 million EU allowances. To bridge the gap between verified emissions and surrendered allowances from maritime transport, 26 720 603 allowances are being cancelled for 2025.

The ETS Directive includes a reporting and review clause to monitor the implementation of the EU ETS for maritime transport, in particular to detect and address any evasive behaviour at an early stage. In addition, with the ETS review proposal, the Commission aims to make the system more effective by reducing the risk of evasive practices, extending certain derogations and ensuring a level playing field through the extension of the ETS scope to certain categories of smaller vessels (between 400 and 5 000 gross tonnage). It also proposed to accelerate the decarbonisation of the maritime sector with a new support mechanism to support the uptake sustainable maritime fuels and zero-emission propulsion technologies. The proposal also introduces simplification measures for shipping companies and supports coherence with the future global measure, once adopted, at the International Maritime Organization (IMO) by avoiding double payments.

In April 2025, the IMO approved the Net-Zero Framework (IMO NZF), including a global standard for gradually reducing the GHG intensity of marine fuels and a pricing element for GHG emissions from international shipping, which the EU welcomed. Discussions on the adoption of the agreement have been adjourned until October 2026. In the meantime, discussions are taking place clarifying various aspects of the Framework.

2.1.4. Buildings, road transport and additional sectors

As part of the 2023 revision of the ETS Directive, a new emissions trading system (ETS2) was created to cover CO_2 emissions from fuel combustion in buildings, road transport and additional sectors (mainly lower emissions industry sectors not covered by the existing EU ETS). ETS2 complements national emission reduction targets under the Effort Sharing Regulation.

ETS2 is separate from the existing EU ETS. Although both are 'cap and trade' systems, ETS2 covers emissions upstream. This means that fuel suppliers (regulated entities) are required to monitor and report their emissions corresponding to the combustion of fuels that they release for consumption in the sectors falling under the ETS2 scope. Once the system is fully operational, the regulated entities will be required to buy and surrender allowances covering their emissions of the previous year.

With the amendment to the European Climate Law adopted in spring 2026[10], the surrendering obligation under ETS2 was postponed by one year from 2027 to 2028. The amendment also triggered the required changes of a one-year postponement, set out in Article 30k(2) of the ETS Directive, of dates and deadlines, notably as regards auctioning, surrendering and review[11]. By June 2027, the EU-wide quantity of allowances, i.e. the ETS2 cap, will be established for the year 2028 based on the average CO_2 emissions reported by the ETS2 regulated entities for the years 2024 to 2026. The first surrendering will take place by 31 May 2029.

In autumn 2025, the Commission announced a package of measures to ensure an even more gradual and smooth start of ETS2 and worked towards its implementation. In June 2026, the changes to the Auctioning Regulation entered into force, allowing for an early start of ETS2 auctions to make revenues available already in 2027, enabling early investments and delivering an early price signal[12]. In October 2026, the targeted adjustments to the Market Stability Reserve Decision regarding ETS2 were adopted by the European Parliament and the Council[13]. The changes will ensure stronger, as well as earlier and smoother, intervention of the Market Stability Reserve and will reinforce its capacity to operate in the longer term. The Commission and the European Investment Bank also set up a new ETS2 Frontloading Facility to enable the frontloading of ETS2 revenues and accelerate the deployment of decarbonisation measures in the housing and mobility sectors, which will particularly benefit low- and middle-income households[14]. In line with the conclusions of the European Council of 15-16 October, the Commission is working to update its assessment of ETS2's impacts, including its design and safeguards.

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[10] Regulation (EU) 2026/667 of the European Parliament and of the Council of 11 March 2026 amending Regulation (EU) 2021/1119 as regards the setting of a Union intermediate climate target for 2040, OJ L, 2026/667, 18.3.2026, ELI: http://data.europa.eu/eli/reg/2026/667/oj.

[11] As published in the Official Journal XX, the conditions for the postponement to 2028 in the event of exceptionally high energy prices pursuant to Article 30k(1) were not separately met. In any case, the postponement was already decided with the amendment to the European Climate Law.

[12] Commission Delegated Regulation (EU) 2026/787 of 8 April 2026 amending Delegated Regulation (EU) 2023/2830 as regards rules on the timing, administration and other aspects of auctioning of greenhouse gas emission allowances, C/2026/2119, OJ L, 2026/787, 15.6.2026, ELI: http://data.europa.eu/eli/reg_del/2026/787/oj.

[13] https://law-tracker.europa.eu/procedure/2025_380?lang=en .

[14] ETS2 Frontloading Facility, EIB.

2.2. The EU ETS in the context of international carbon pricing

EU-Swiss ETS Linking Agreement

The EU and Swiss Emissions Trading Systems have been linked since 2020, on the basis of a Linking Agreement[15] that ensures mutual recognition of allowances issued by the two parties. This provides EU and Swiss operators with access to the two markets, allowing them to purchase and surrender allowances in either of the two systems.

The Linking Agreement ensures that the two parties apply the same approach to rules on geographical coverage, cap and allocation of allowances. It applies to the full scope of ETS1, i.e. to emissions from stationary, maritime and aviation sectors. Swiss domestic flights and flights departing to EEA airports are covered by the Swiss ETS, while flights departing from the EEA to Switzerland fall under the EU ETS.

Since 2024, transfers of allowances between the two systems have been performed daily, using a direct link between their respective registries. In 2025, the total number of transfers from the EU ETS to the Swiss ETS reached 3 692 716 (+ 132% compared to 2024). The total number of transfers from the Swiss ETS to the EU ETS reached 3 606 093 (+129% compared to 2024), showing sustained and increasing interest from market participants (see Table 20 of accompanying technical staff working document).

In total, EU stationary installations and aircraft operators used 930 188 allowances issued under the Swiss ETS for compliance under the EU ETS in 2025 (0.1% of all surrendered allowances for compliance under the EU ETS excluding maritime surrendered allowances). Conversely, Swiss stationary installations and aircraft operators used 855 225 allowances issued under the Swiss ETS, representing 16% of all allowances surrendered under the Swiss ETS (see Table 19 of accompanying technical staff working document).

After five years of effective operation, the link between the EU and Swiss emissions trading systems has proven to be an efficient tool for ensuring convergence between the two carbon markets, increasing liquidity, offering flexibility and aligning carbon prices across jurisdictions.

EU-UK ETS Linking Agreement

In May 2025, the first EU-UK Summit since the UK's withdrawal from the EU took place. At this summit, leaders agreed on a *renewed agenda for European Union – United Kingdom cooperation*. Among other agreements that are foreseen, the Common Understanding includes the ambition to work towards linking the EU ETS and the UK ETS. A linked marked would address many of the issues raised in respect of trade and a level playing field. Since the adoption of the negotiation mandate by the Council in November 2025, the

[15] Agreement between the European Union and the Swiss Confederation on the linking of their greenhouse gas emissions trading systems (OJ L 322, 7.12.2017).

European Commission has been negotiating a linking agreement with the relevant UK authorities. As of 1 October 2026, these negotiations have not yet been concluded.

EU engagement on global carbon markets

The European Commission established a Task Force on International Carbon Pricing and Markets Diplomacy as part of its Communication on the 2040 Climate Target. Building on the EU's successful experience with the EU ETS, as well as on its longstanding international engagement, the Task Force shares the EU's lessons learned and encourages more partner countries to introduce carbon pricing tools tailored to their needs. It also engages actively in international carbon markets to strengthen climate ambition and contribute to sustainable development. The EU Carbon Border Adjustment Mechanism (CBAM) has further incentivised governments to use pricing measures to reduce GHG emissions.

The EU's outreach and diplomacy have contributed to tangible progress. Encouraged by international collaboration, carbon pricing and markets have continued to gain traction as more countries integrate them into their strategies to meet Paris Agreement commitments. In 2025, 28% of global GHG emissions were subject to a carbon price[16], with around 80 jurisdictions having a carbon pricing policy in place or under development. Some of the most prominent developments over the past months include the adoption of legislation setting up or extending carbon pricing schemes in Brazil, China, India, Japan and Türkiye.

Annual Carbon Market Workshop under the Florence Process

The Carbon Market Workshop, held under the Florence Process, is the European Commission's international forum on carbon pricing. Established in 2017 and jointly organised with the European University Institute (EUI), it takes place annually as part of the EUI Climate Week. The Climate Week combines public sessions on climate policy developments, including carbon pricing, followed by the closed-door Carbon Market Workshop for participating jurisdictions and a limited number of invited experts.

The workshop brings together both established and emerging emissions trading jurisdictions to exchange experience and discuss solutions to common challenges in policy implementation. Participants include the EU, Switzerland, the UK, Brazil, New Zealand, China, the Regional Greenhouse Gas Initiative (RGGI), California, Canada and Québec. With an expansion of carbon pricing globally, more jurisdictions were invited to the workshop in recent years, including Türkiye and Mexico. The Florence Process exchange is highly relevant in the context of the EU's 2040 climate target, outreach on carbon pricing and engagement on international carbon markets under the Paris Agreement (Article 6).

In 2026, the Florence Process took place on 7 May. Discussions focused on recent developments in participating jurisdictions, the role of carbon pricing in driving investment in

[16] World Bank Carbon Pricing Dashboard (2025) https://carbonpricingdashboard.worldbank.org/compliance/coverage.

industrial decarbonisation, and the integration of carbon removals and international credits into emissions trading system design.

Open Coalition on Compliance Markets

On 7 May 2026, the EU, Brazil and China launched the Open Coalition on Compliance Markets (OCCCM). The Coalition was joined by New Zealand and Germany on the same day, and by the United Kingdom, Norway and Canada subsequently. As of July 2026, several other countries and organisations have submitted, or are in the process of submitting, an expression of interest to join the Coalition, and are expected to join in the course of the year. The establishment of the OCCCM follows on a Leaders Declaration on Carbon Markets signed by 18 countries at COP30.

The purpose of the Coalition is to advance international cooperation on compliance carbon markets as an important policy tool for achieving Nationally Determined Contributions under the Paris Agreement. In concrete terms, the Coalition will strengthen collaboration and exchange of best practices in areas such as monitoring, reporting and verification systems, carbon accounting methodologies, and potential use of high integrity offsets to promote environmental integrity.

EU- China cooperation

China's national ETS, launched in 2021, covers the power sector and the production of iron and steel, aluminium and cement. These sectors are responsible for some 60% of the country's GHG emissions. This rate is expected to increase to 70-75% with the addition of new sectors (chemicals, petrochemicals, civil aviation and papermaking) planned for 2027. The system currently does not provide for an absolute cap on emissions, and all allowances are allocated for free.

Given that China accounts for roughly a third of global GHG emissions, increasing the ambition of its ETS is of crucial importance for global efforts to mitigate climate change. EU-China cooperation on ETS takes place under the umbrella of a Memorandum of Understanding, which was last updated in 2024. The European Commission supports China in the development of its ETS through the 'EU-China Dialogue and Cooperation on ETS-Related Policies and Measures' project. In addition to continuing capacity building activities for Chinese officials in the field of monitoring, reporting and verification of emissions ('train-the-trainer' programme), in the 2026 the project concentrates on developing studies and recommendations for the Chinese authorities on introducing an absolute cap on emissions and on phasing in the auctioning of allowances. These two elements could substantially increase the effectiveness of the system.

ETS cooperation with candidate countries for EU accession

The EU ETS is a central element of the single market, and it is of crucial importance that candidate countries are well prepared to join the system on the day they join the EU. The

Commission is working closely with the candidate countries to help them with the preparation and ensure their smooth integration into the EU ETS.

In order to adapt the ETS to the accession of new members, and to ensure its correct functioning after the enlargement, it is necessary that the monitoring, reporting and verification of the full set of emissions data from entities subject to the ETS starts well ahead of the accession. The Commission verifies, as part of the benchmarks for closing relevant chapters of the accession negotiations, that the whole *acquis* on monitoring, reporting, verification and accreditation (MRVA) is implemented in time by candidate countries, so that emissions data for a sufficient historical period is collected before the countries concerned join the EU.

Recognising the complexity of the alignment on *acquis* in the field of the ETS, the Union provides candidate countries with pre-accession support, including capacity building projects and assistance in the drafting of relevant legislation throughout the process. Essential assistance and coordination are also provided by the Energy Community.

2.3. The EU ETS in the context of the EU energy efficiency policy

The EU ETS continues to operate within the broader framework of the EU's climate and energy policies, including the Energy Efficiency Directive (Directive (EU) 2023/1791 - EED), which forms an important part of the 'Fit for 55' legislative package. The Directive establishes a strengthened framework for improving energy efficiency across the EU, including a binding EU-level target to reduce final energy consumption by 11.7% by 2030 compared to the projections of the 2020 EU reference scenario. In accordance with Article 35(1) of the Directive, the implementation of the EED is taken into consideration in this report on the functioning of the European carbon market.

In 2025 and 2026, the enforcement of the Directive increasingly shifted from legislative adoption to implementation. Member States continued work on the transposition of the recast Directive and on delivering measures contributing to their national energy efficiency contributions and trajectories set out in the updated national energy and climate plans (NECPs).

The carbon price signal generated by the EU ETS remains an important factor influencing investment decisions in sectors covered by the system. Energy efficiency measures can contribute to cost-effective emissions reductions by lowering energy demand and reducing the need for emissions allowances over time. In this way, energy efficiency and carbon pricing continue to operate as complementary instruments supporting the EU's decarbonisation objectives.

Energy efficiency also contributes to broader policy objectives related to competitiveness, resilience and energy security. By reducing energy demand and lowering operating costs, energy efficiency can strengthen the competitiveness of European businesses while reducing their exposure to energy price volatility. Investments in energy efficiency can also increase

the resilience of the energy system by reducing pressure on energy infrastructure stemming from carbon free but volatile renewable energy, improving system flexibility and lowering dependence on imported fossil fuels. These benefits complement the incentives created by carbon pricing and support a cost-effective transition towards climate neutrality.

Member States continue to use revenues generated by the EU ETS to support investments in energy efficiency. Reported expenditure includes measures such as improvements in heating and cooling systems, industrial energy efficiency projects, energy management systems, advisory services and other initiatives aimed at reducing energy consumption and energy costs[17]. Such investments contribute to the achievement of the EED objectives while supporting competitiveness, affordability and the resilience of the EU's energy system.

3. A well-functioning carbon market

3.1. Emissions cap and trends

The EU ETS cap sets a clear limit on the maximum volume of emissions that regulated companies can emit each year. It determines the number of allowances issued annually, with one allowance corresponding to one tonne of CO_2 equivalent emissions.

Following the 2023 revision, the EU ETS cap is set to reduce ETS emissions by 62% in 2030 compared with 2005 levels[18]. The cap is lowered each year according to an agreed linear reduction factor to achieve these climate targets (see Figure 4 in Section 3.1.3). From 2024 to 2027, it is set to decline each year by 4.3% of the reference emissions set out in Articles 3c and 9 of the ETS Directive. From 2028 onwards, the annual reduction rate is set to 4.4%.

As the cap tightens, the supply of allowances declines and scarcity in the carbon market increases. Regulated companies can thus plan based on a predictable and increasing carbon price and are incentivised to decarbonise, while investors and technology providers receive a signal to allocate capital toward low-carbon solutions.

3.1.1. Emission trends

In 2025, overall emissions in the EU ETS1 (as reported by 30 September 2026) amounted to 1 163 million tonnes of CO_{2eq}. This figure represents a reduction of 2% compared to 2024.

CO_2 emissions from aircraft operators continued to increase in 2025 compared to the preceding year. In 2025, CO_2 emissions amounted to 62.7 Mt (including 988 434 tons from operators administered by Switzerland), up from 62.6 Mt in 2024. This is an increase of around 0.2% since 2024, underlining the urgent need to decarbonise the aviation sector.

2025 also recorded very high maritime activity levels with emissions amounting to 87.4 Mt CO_2, yet 4% lower than in 2024, mainly due to the increase in the use of zero-rated sustainable fuels. Further details on the trends in aviation and maritime emissions and the underlying drivers are provided in subchapters 2.2.2 and 2.2.3.

[17] More detailed information on the use of ETS revenues is provided in Section 4.1.
[18] See The European Parliament and The Council on Amending Directive 2003/87/EC (2023), paragraph 39.

Emissions from power and industry installations amounted to 1 013 Mt CO_{2eq}, representing a 2% decrease from 2024 levels. Figure 1 shows annual emissions data from installations.

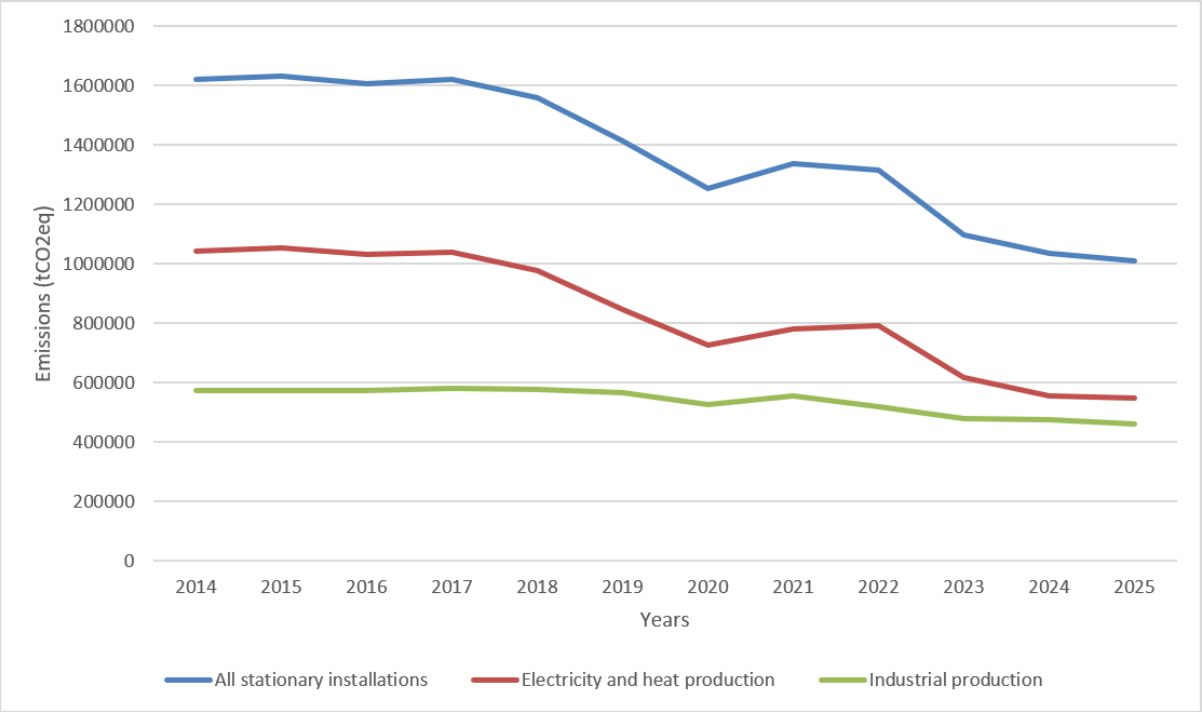
Emissions from electricity and heat generation (reported by 30 June 2026) dropped by 1.7% compared to 2024. Total electricity supply in the EU increased by 0.9% year-on-year, due to greater weather-related heating and cooling demand and continued deployment of heat pumps, data centres and electric vehicles, together with a small increase in industrial consumption[19]. Renewable energy sources contributed 47.2% to the electricity mix in 2025, with wind and solar generating more than fossil fuels for the first time. Weather conditions, including low wind speeds in the first half of the year, contributed to higher solar generation (+19%) but also to a small drop in wind output (-2%) and a large drop in hydropower (-12%). These conditions also led to solar generation surpassing hydro generation for the first time, becoming the second largest renewable electricity source after wind. Generation from combustible fuels also arrested its multi-year decline. While generation from most fossil sources fell, generation from natural gas increased by 9%, due in part to its role as a dispatchable alternative to hydropower.

Emissions from industrial installations in 2025 (reported by 30 June 2026[20]) decreased by 3.3% compared to 2024. This reduction is mostly driven by the iron and steel, cement, and chemical sector, but it reflects a general trend for most sectors with the notable exception of the ceramic and aluminium sectors where emissions have increased, by more than 2% compared to 2024.

[19] Statistics quoted in this paragraph are from the June 2026 update of the Eurostat page *Energy production and imports*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_production_and_imports
Analysis of demand drivers is from *Electricity 2026, Analysis and forecast to 2030* by the International Energy Agency https://www.iea.org/reports/electricity-2026. Background on weather conditions is from *European Electricity Review 2026* by Ember Energy. https://ember-energy.org/latest-insights/european-electricity-review-2026/

[20] 99.7% of the emissions from stationary installations reported by 30 September 2026 had already been reported by 30 June 2026.

Figure 1. Emission trends from 2014 to 2025, based on verified emission figures extracted on 30 June 2026.[21]



3.1.2. Emissions from fossil fuel combustion in installations

Certain emissions under the ETS covered stationary installations originate directly from industrial processes. Others originate from the combustion of fossil fuels. Figure 2 shows the share of emissions from fossil fuel combustion in installations' total emissions, and Figure 3 shows the breakdown of combustion emissions by fuel type[22].

Emissions from fossil-fuel combustion in stationary installations remain on a long-term downward trend, driven chiefly by the structural decline of hard coal and lignite and an increase in the use of natural gas and biomass fuels.

Natural gas is a flexible fuel but its role varies with electricity demand and renewable and hydro power availability rather than following a uniform coal-to-gas substitution trend.

In 2025, strong solar growth and further coal reductions coincided with higher gas-fired generation amid lower wind and hydro output, while power-sector combustion emissions still edged down. Reported zero-rated biomass CO_2 was equivalent to around 19% of reported fossil-fuel combustion emissions, almost a percentage point more than in 2024.

[21] The categorisation between electricity and heat production and industrial production is made at the installation level. Some uncertainty should therefore be expected in the allocation of emissions between these two sectors, as individual installations may carry out both activities but be assigned only one category. In most cases, emissions associated with heat production within industrial installations are assigned to industrial production.

[22] This analysis relies on data on the implementation of the EU ETS reported by countries every year under Article 21 of the ETS Directive (deadline of 30 June). Some countries reclassified some fuel in 2025, therefore the 2025 data is not fully comparable to the previous year.

Figure 2. Emission trends from fossil fuel combustion in stationary installations covered by the EU ETS (2013-2025). Labels show the %-share of the installations' total emissions.

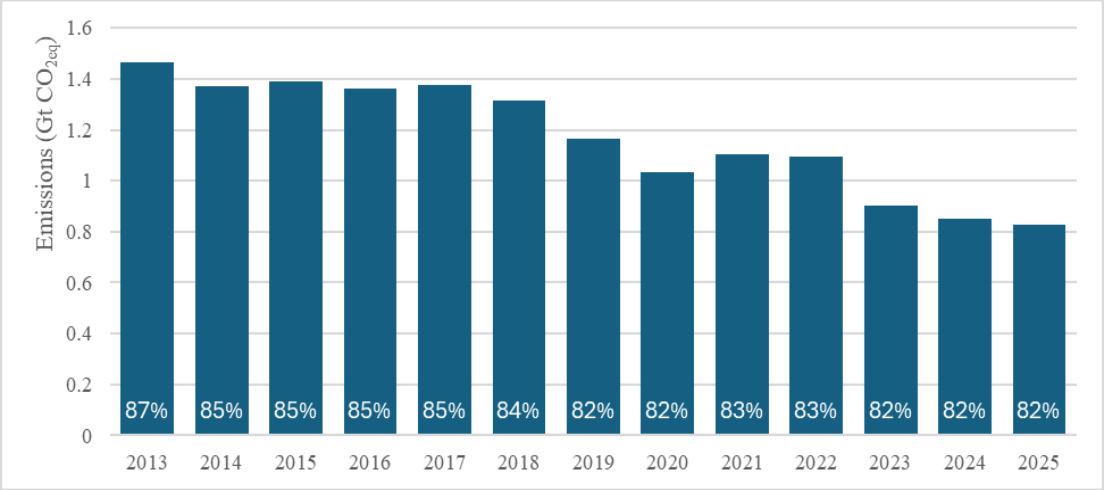
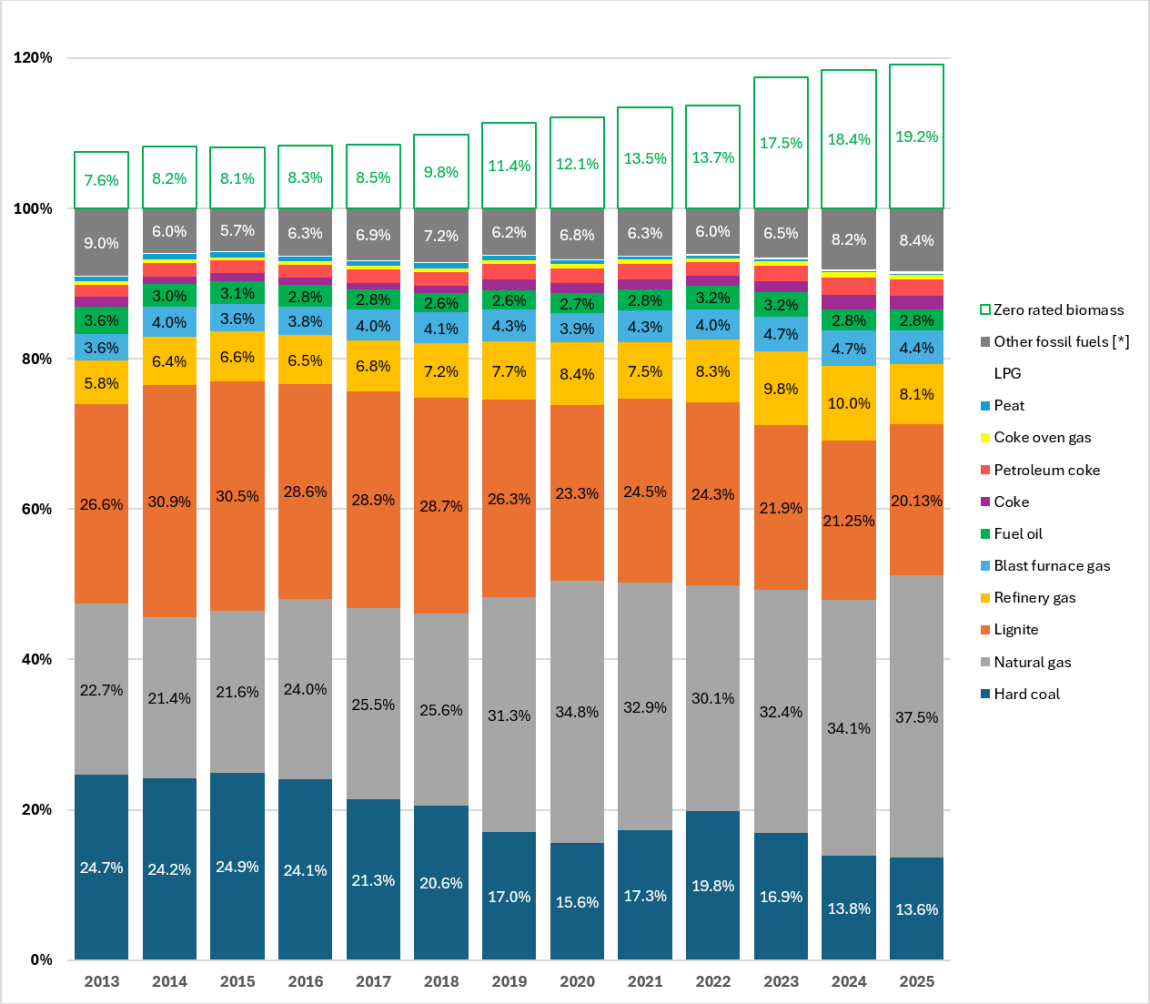


Figure 3. Emission trends from the combustion of different fuels in stationary installations covered by the EU ETS (2013-2025).



Note: Labels show the %-share of installations' total (fossil) combustion emissions. Labels are not shown if emissions from the combustion of a particular fuel never exceed a 3%-share. Other fossil fuels refer to fuels not already listed in the legend. Emissions from the combustion of biomass are zero-rated under the EU ETS, hence they are shown on top of installations' total combustion emissions.*

3.1.3. The 2025 cap in operation

Separate cap calculations apply under the EU ETS to emissions from electricity and heat generation, industrial production and maritime transport (as per Article 9 of the ETS Directive) and from aviation (as per Article 3c of the ETS Directive).

In 2025, 1 298 127 514 allowances were issued for electricity and heat generation, industrial production and maritime transport, while 26 233 302 allowances were issued for aviation.

The 2026 and 2027 cap are adjusted to reflect both the continued tightening of the EU ETS and changes in its scope. Under Article 9 of the ETS Directive, the 2026 cap was reduced by 27 million allowances in line with the EU ETS 2030 target. At the same time, the cap was

increased by 2 375 680 to account for the inclusion of N_2O and CH_4 emissions from maritime transport in 2026. The cap is set to be increased again in 2027, to account for the extension of the EU ETS to large offshore vessels in that year, with an estimated amount of 1 874 710 allowances.[23]

In addition, the list of installations excluded by certain Member States under Article 27 of the ETS Directive was updated for the 2026-2030 period, resulting in small cap adjustments from 2026 onwards.

Table 1 shows the total quantities of allowances issued for the different sectors under the EU ETS cap.

Table 1. EU ETS cap (2021-2027)

Year	Total quantity of allowances for electricity and heat generation, industrial production and maritime transport	Total quantity of allowances for intra-aviation
2021	1 571 583 007	28 306 545
2022	1 528 579 492	27 268 379
2023	1 485 575 977	26 341 779
2024	1 386 051 745	27 563 529
2025	1 298 127 514	26 233 302
2026	1 185 420 090	24 903 076
2027	1 099 279 241	23 572 850

Note: Separate cap calculations apply to (i) emissions from electricity and heat generation, industrial production and from 2024 onwards maritime transport, and (ii) emissions from aviation in the scope of the EU ETS. From 1 January 2024, the scope of the EU ETS for aviation extends to emissions from most flights between the EEA and the EU's nine outermost regions as well as departing flights from the outermost regions to Switzerland and the UK (see Section 2.2.2). The total quantity of allowances for aviation from 2024 reflects the extended scope of the EU ETS for aviation

Figure 4 illustrates the trajectory of the cap and emissions throughout Phase IV for stationary and maritime. As expected, the cap reduces in line with the linear reduction factor, which decreased from -2.2% up to 2023 to -4.3% for 2024-2027. Thereafter, the annual reduction progresses further to -4.4% until 2030. This trajectory is also accompanied by a rebasing of the cap, resulting in reductions of 90 million allowances in 2024 and 27 million allowances in 2026, as set out in Article 9 of the ETS Directive.

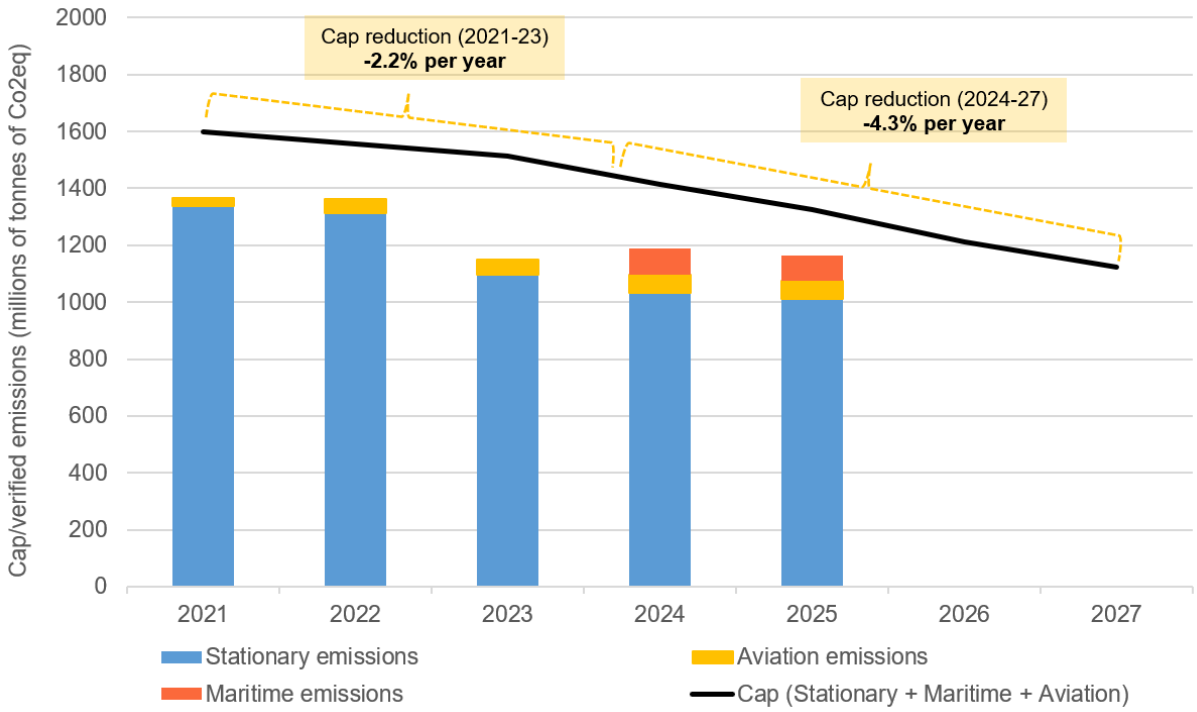
Figure 4 also shows the emissions from 2021 to 2025. Emissions have been on a steady downward trend, falling by 15% in 2025 compared with 2021. However, because maritime

[23] Following these adjustments, from 2025 to 2028 the linear reduction amount for electricity and heat generation, industrial production and maritime transport stand at 112,707,424 while from 2026 to 2027 stand at 86,215,558 million of allowances.

transport was included in the scope of the ETS from 2024 onward, overall emissions slightly increased in 2024 before resuming their decline in 2025.

When annual emissions are below the cap, unused allowances remain in circulation for use in future years. However, some of these allowances are absorbed by the Market Stability Reserve (MSR) to avoid a structural surplus and thereby support market balance and price stability (see Section 3.5).

Figure 4. Emissions cap in the EU ETS compared with verified emissions from 2021 to 2027



Source: ETS data from Union Registry and Swiss Registry

3.2. Auctioning of allowances

Since 2013, auctioning has been the default method for distributing allowances in the EU ETS. This approach implements the polluter pays principle, ensuring that those who emit pollutants pay for the right to do so.

Member States auction allowances according to the rules set out in the EU ETS Directive and the Auctioning Regulation (Regulation 2023/2830)[24]. This ensures that auctions take place in an open, transparent, harmonised, and non-discriminatory manner. The same rules apply to auctions of allowances for Iceland, Liechtenstein, and Norway (the three EEA-EFTA States), as well as the UK for what concerns electricity generation in Northern Ireland.

[24] Commission Delegated Regulation (EU) 2023/2830 of 17 October 2023 supplementing Directive 2003/87/EC of the European Parliament and of the Council by laying down rules on the timing, administration and other aspects of auctioning of greenhouse gas emission allowances (OJ L, 2023/2830, 20.12.2023, ELI: http://data.europa.eu/eli/reg_del/2023/2830/oj).

Over the 2021-2030 period, up to 57% of the general allowances will be auctioned, while the remaining allowances will be allocated for free to mitigate the risk of carbon leakage and incentivise the deployment of low-carbon technologies.

Table 2 provides an overview of the annual volumes of allowances auctioned by the EEX since 2021.

Table 2. Total volumes of allowances auctioned (from 1 January 2021 to 30 June 2026)

Year	ETS1 allowances
2021	586 738 000
2022	486 087 000
2023	523 307 500
2024	599 490 000
2025	588 735 000
2026 (until 30 June)	243 799 500

Auction revenues and their use

Auctioning of allowances in the EU ETS raises revenues for national budgets, the Innovation Fund, the Modernisation Fund, the Recovery and Resilience Facility and the Social Climate Fund.

In 2025, EUR 24.1 billion (56% of total EU ETS revenues) went directly to EU Member States' and EEA-EFTA States' national budgets.

The Innovation Fund (see Section 4.3) supports breakthrough innovation in sectors covered by the ETS and the Modernisation Fund (see Section 4.4) assists 13 Member States (Bulgaria, Czechia, Estonia, Greece, Croatia, Latvia, Lithuania, Hungary, Poland, Portugal, Romania, Slovenia and Slovakia) in their energy transition efforts. In 2025, the EU ETS raised EUR 2.6 billion for the Innovation Fund and EUR 6.5 billion for the Modernisation Fund.

Since July 2023, a certain volume of allowances from the Member States' auctioning share and part of the Innovation Fund budget have been redirected to the Recovery and Resilience Facility (RRF) to raise EUR 20 billion for the REPowerEU plan[25]. Member States used these additional RRF resources to carry out further reforms and make investments to advance the clean energy transformation and boost energy security. The EUR 20 billion revenue target was reached in July 2026 after the auctioning of 278.5 million allowances.

From 2025 onwards, additional auction volumes are allocated to the newly established Social Climate Fund, which aims to support vulnerable households and transport users during the

[25] Article 10e of Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (ETS Directive).

transition to climate neutrality. In 2025, 50 million allowances were allocated to that Fund, raising EUR 3.7 billion revenues.

Table 3. Auctioning Revenues (from 1 January 2021 to 30 June 2026) in EUR billion

	2021	2022	2023	2024	2025	2026 *(30 June)*	Total
Member States	25.1	30.1	33.3	24.6	24.1	8.3	**145.7**
Innovation Fund	2.2	3.2	1.8	2.3	2.6	1.3	**13.4**
Modernisation Fund	3.8	5.4	5.6	6.3	6.5	3.1	**30.6**
Recovery and Resilience Facility			2.8	5.6	6.4	5.0	**19.8**
Social Climate Fund					3.7	0.6	**4.3**
Total	**31.1**	**38.8**	**43.6**	**38.8**	**43.2**	**18.4**	**213.8**

Auction platform

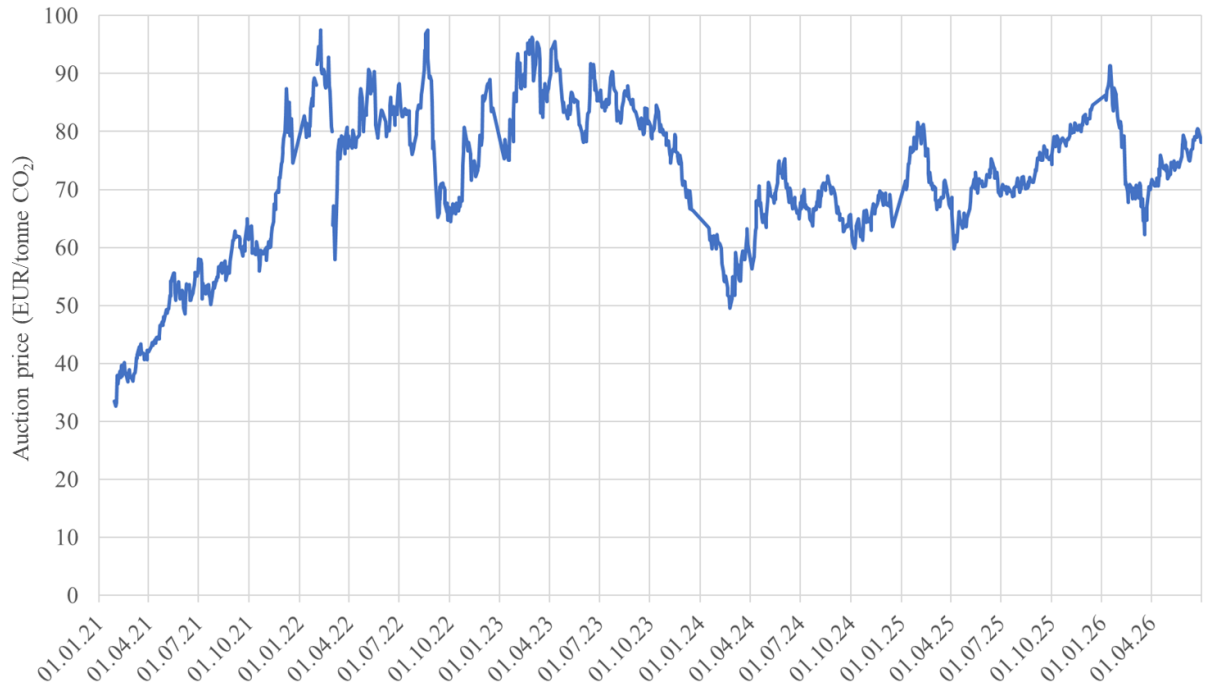
28 countries (i.e., 25 EU Member States plus Iceland, Liechtenstein and Norway) auction their allowances via the European Energy Exchange (EEX), a common auction platform. Located in Leipzig (Germany), the EEX was selected through a joint procurement procedure.

Germany, Poland and the UK (for what concerns Northern Ireland) have opted out of the common auctioning platform. Germany has nominated EEX as their opt-out platform, while Poland and the UK are using EEX to auction their allowances until further notice.

Auction price

Figure 5 gives an overview of auction clearing prices in the EU carbon market since the start of Phase 4 in 2021. The highest auction price in 2025 of EUR 84.60 was reached on 15 December, the last auction of the year. The lowest price of EUR 59.76 was recorded on 7 April. The average price in 2025 was EUR 73.43, up from EUR 64.74 in 2024. In the first half of 2026, the price varied between EUR 62.19 and EUR 91.34.

Figure 5. Clearing prices in auctions of general allowances (from 1 January 2021 to 30 June 2026) [EUR/tonne CO_2]



Flexibility under the Effort Sharing Regulation

Regulation (EU) 2018/842[26] ('Effort sharing Regulation' or 'ESR') lays down obligations on Member States with respect to their minimum contributions for the period from 2021 to 2030 to fulfilling the EU's target of reducing its greenhouse gas emissions in sectors not included in the scope of the ETS Directive. Eight Member States[27] have the possibility to cancel up to a maximum of 100 million EU ETS allowances collectively for their compliance under the ESR, to be deducted from the Member States' respective auction volume.

From 2021 to 2024, six[28] out of the eight Member States concerned used the ESR flexibility and collectively deducted 28.8 million allowances from their auctioned volume. Sweden started using the ESR flexibility as from 2025, while Denmark and Luxembourg will stop using it from 2026 onwards.

Voluntary cancellation of allowances

Under Article 12(4) of the ETS Directive, Member States are encouraged to cancel allowances if they close electricity generation capacity in their territory due to additional

[26] Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013 (OJ L 156, 19.6.2018, p. 26–42, ELI: http://data.europa.eu/eli/reg/2018/842/oj).
[27] Belgium, Denmark, Ireland, Luxembourg, Malta, The Netherlands, Austria, Finland and Sweden.
[28] The Netherlands and Sweden did not use the flexibility.

national measures. In this way, Member States may prevent the resulting decrease in emissions from being undone elsewhere in the system.

The Member State concerned must inform the Commission of its intended cancellation. The cancellation is carried out by reducing the total quantity of allowances to be auctioned by the Member State and the quantity is limited to a maximum of the sum of relevant verified emissions over the five years preceding the closure. The procedure for the cancellation of allowances is laid down in Article 25 of the Auctioning Regulation.

In December 2023, Germany notified the Commission of its intention to cancel allowances associated with the closure of two power plants in 2022 as part of the country's coal phase out policy[29]. The cancellations are planned to occur between 2025 and 2030. The methodology to calculate the number of allowances to be cancelled was part of the notification. It takes into account emissions from replacement electricity generation in the electricity market as well as the operation of the Market Stability Reserve.

The number of allowances to be cancelled in relation to the notification are communicated to the Commission annually. In 2025, 514 000 allowances were cancelled from Germany's auction volume. In 2026, by contrast, no allowances will be cancelled, because the surplus indicator of the Market Stability Reserve under the EU ETS (the total number of allowances in circulation or 'TNAC') was in the buffer zone in 2025 and the MSR had already absorbed any surplus emissions resulting from Germany's closures[30].

In December 2025, Germany notified the Commission of its intention to cancel allowances associated with the closure of 14 addition power plants, shut down in 2024.[31] Germany has two years to notify the exact volumes of allowances to be cancelled for these plants. The cancellations are planned to occur between 2026 and 2032 based on the same methodology as for the 2022 closures.

3.3. Free allocation of allowances and carbon leakage protection

According to the ETS Directive, free allocation is a transitional measure primarily addressed to industry sectors. While auctioning is the primary method for distributing allowances in the EU ETS, a significant volume of allowances is allocated to industrial installations for free to address the risk of carbon leakage[32].

A dedicated carbon leakage list identifies sectors deemed to be at risk of carbon leakage, which are eligible to receive free allocation at 100% of the relevant benchmark levels. The list identifies 63 sectors and sub-sectors covering most of industrial emissions in the EU ETS.

[29] Notification by Germany of voluntary cancellation for plants closed in 2022, DG Climate Action, 2.5.2024.

[30] Notification by Germany of voluntary cancellation of allowances in the EU ETS for plants closed in 2022, DG Climate Action, 4.9.2026.

[31] Notification by Germany of voluntary cancellation for plants closed in 2024, DG Climate Action, 28.4.2026.

[32] Carbon leakage could occur if ETS-regulated activities were moved to non-EU countries with less ambitious climate policies, leading to an increase in overall greenhouse gas emissions.

Less exposed sectors receive free allocation corresponding to a maximum 30% of the benchmark value.

Free allocation is based on performance benchmarks, which reflect the average emissions intensity per unit of product of the 10% most efficient installations in each sector. As allowances must be surrendered for all emissions, allowances must be bought on the market for emissions beyond those benchmark values. Benchmarks are also reduced incrementally to strengthen the incentive for the sector to decarbonise and advance innovation.

In 2021, the Commission updated the benchmark values for the 2021-2025 allocation period[33] with reduction rates ranging from -3% to -24% applied to the original values valid for the 2013-2020 period. The benchmarks have also been updated for the 2026-2030 allocation period[34] with reduction rates ranging from -6% to -50% applied to the original values.

Since 2021, volumes of free allocation are being adjusted when significant changes in industrial production volumes occur based on a comparison between the initial volumes and an average of the preceding two years[35]. The threshold for adjustments is set at 15% increasing or decreasing production, and subsequent adjustments may take place between smaller 5% intervals.[36] Operators are required to submit yearly reports on production data to national competent authorities, based on which adjustments may be made to the volumes of free allocation issued. This added stringency has led to an increase in the number of yearly adjustments to free allocation. The average number of applications per year submitted in 2021-2025 was over 4 400, more than three times as many as the yearly average up to 2020. There is an increase in numbers from year to year due to the smaller 5% intervals required for subsequent changes to free allocation.

Initially, the total free allocation for 2021-2025 had been calculated at 2 791 million allowances, for 7 430 installations. With an average historical carbon price at over EUR 71/tCO_2 between 2021 and 2025, the value of this allocation amounted to about EUR 39 billion per year on average. By mid-2026, the Commission had adopted 21 decisions to adjust free allocation due to changes in industrial production volumes, resulting in a net reduction of 192.2 million allowances[37]. In parallel, however, the Commission also adopted eight decisions correcting the initial level of free allocation, adding 3.5 million allowances[38]. This was necessary due to errors found in the data submitted by installations when applying

[33] Commission Implementing Regulation (EU) 2021/447 of 12 March 2021, OJ L 87, 15.3.2021.

[34] Commission Implementing Regulation (EU) 2026/1412 of 26 June 2026, OJ L, 2026/1412, 29.6.2026.

[35] Commission Implementing Regulation (EU) 2019/1842 of 31 October 2019, OJ L 282, 4.11.2019.

[36] For more information, see Guidance Document n°7 on the harmonised free allocation methodology for the EU ETS post 2020, Guidance on allocation level changes, Final version issued on 23 January 2026.

[37] The European Free Trade Agreement Surveillance Authority also adopted Decisions for Iceland, Liechtenstein, and Norway.

[38] The European Free Trade Agreement Surveillance Authority also adopted Decisions for Iceland, Liechtenstein, and Norway.

for free allocation. Overall, the free allocation for 2021-2025 has been reduced by 188.7 million allowances compared to the initial total free allocation.

Adjustments to the level of free allocation are managed through the New Entrants' Reserve (NER). These adjustments also include changes in allocation due to installations opening or closing. The initial volume of the NER at the start of 2021 amounted to 331.3 million allowances. This included unallocated allowances from phase 3 (2013-2020) and 200 million allowances from the Market Stability Reserve. As of June 30, 2026, the NER holds 520 million allowances.

Table 4 summarises the annual levels of free allocation in the 2021-2025 allocation period (both initial and adjusted levels), showing reductions of 'Actual free allocation' throughout the allocation period. The main reasons for these reduced volumes are the negative impacts on production levels for certain sectors because of the pandemic and the energy crisis primarily in 2022 and 2023. Because adjustments to free allocation are based on a comparison considering the average production levels over the preceding two years, the full effect of a continued decrease in production is delayed by two years.

Table 4. Free allocation to stationary installations under the EU ETS (2021-2025) [million allowances]. Data extracted from the Union Registry on 30 June 2026.

Year	2021	2022	2023	2024	2025	Total
Initial free allocation (EU-27 + Iceland, Liechtenstein and Norway)	559,6	558,9	558,2	557,5	556,8	**2 791,1**
Actual free allocation	546,1	542,8	537,3	495,6	480,6	**2602,3**
Adjusted and corrected free allocation	-13,5	-16,1	-21,0	-61,9	-76,2	**-188,7**

Since 2013, the EU ETS was built on the concept of an EU-wide, harmonised approach for a transitional system of free allocation of allowances based on benchmarks. This design, and the use of benchmarks, allows for situations where the free allocation received by individual installations can and is permitted to exceed the verified emissions for one or more years. However, the surplus of a few installations does not prevent overall emissions from decreasing and most installations would have a carbon cost for obtaining the required amount of additional allowances to cover their emissions. The main reasons why a surplus of allowances could be received by an installation for free are explained below.

The benchmark values are set and regularly updated based on the average performance of the 10% most efficient (least emission intensive) installations using relevant benchmarks. This

means that under each benchmark there would be a number of installations outperforming the other 90%; these would receive enough allowances to cover their emissions or even a surplus of allowances. In addition, the Free Allocation Regulation includes provisions on the attribution of free allocation in the case of export and import of heat or waste gases, which may differ from how emissions are reported. Emissions and free allocation for such cases could be assigned to separate installations, with the result that one appears to receive more allowances than its emissions. For example, a chemical plant importing heat from another installation receives free allocation for imported heat to mitigate carbon leakage risks while the emissions are reported by the separate heat producing plant.

An excess of allowances may also be related to are the rules for annual allocation adjustments to reflect significant changes in industrial production volumes (see above) The two-year average creates a 'buffer', meaning that the full effect of a significant production decrease would not apply in full on free allocation levels until two years later, i.e. reported emissions would go down immediately but the reduction in free allocation would not.

Free Allocation exercise for the 2026-2030 period

Following the completion of the 2026-2030 Free Allocation exercise, marked by the adoption of the cross-sectoral correction factor (CSCF) decision[39] and the initial National Allocation Tables (NAT 0) decision[40], free allocation for the period 2026-2030 amounts to **2 134 087 791** EUAs.

Final allocation [EUA] (excluding Art 27/27a)						
	2026	**2027**	**2028**	**2029**	**2030**	**2026-2030**
before CBAM	471 672 725	470 667 744	468 596 642	467 591 502	466 586 354	2 345 114 967
after CBAM	465 709 524	458 741 358	444 752 571	413 942 149	350 942 189	2 134 087 791
Difference	**5 963 201**	**11 926 386**	**23 844 071**	**53 649 353**	**115 644 165**	**211 027 176**

Non-allocated allowances due to CBAM phase-in amount to 211,027,176 EUAs, which according to Article 10a(1a) fourth subparagraph of the ETS directive, are made available to the ETS Innovation Fund.

The ETS Directive provides[41] that up to 3% of the cap that otherwise would have been auctioned can be used for free allocation to prevent triggering the CSCF. This 3% free allocation buffer amounts to 368,419,533 EUAs over the ten-year period between 2021 and 2030. Following the calculations of the preliminary free allocation, a total of 280,505,359 EUAs coming from the 3 % buffer were used to ensure that the CSCF remains 100% (i.e. no reduction to free allocation) for the period 2026-2030. This final value diverges from

[39] https://eur-lex.europa.eu/eli/dec_impl/2026/1862/ojhttps://eur-lex.europa.eu/eli/dec_impl/2026/1862/oj.
[40] C(2026)5685.
[41] Article 10a(5a) of the ETS Directive : '(…) *an additional amount of up to 3 % of the total quantity of allowances shall, to the extent necessary, be used to increase the maximum amount available under paragraph 5(…)'.*

the 289,226,630 indicated in recital 9 of the CSCF decision due to exclusion of installations under Article 27/27a of the ETS Directive that were finalized only after adoption of the CSCF Regulation[42].

The remaining allowances from the 3% buffer amount to 87 914 174 allowances.

Several conditions apply to free allocation for the 2026-2030 period. According to Article 10a(1) third subparagraph of the ETS Directive, installations covered by the obligation under Article 8 of the Energy Efficiency Directive (2012/27/EU) to conduct energy audits are obliged to implement those audit recommendations. Separately, installations whose greenhouse gas emission levels are higher than the 80th percentile of emission levels for the relevant product benchmarks are required to establish climate-neutrality plans (CNP). The installations concerned that do not comply with these conditions have their free allocation reduced by 20%. The table below summarises the total number of free allocations reduced due to energy efficiency and CNP conditionalities

20% reduced allocation due to conditionality [EUA] (excluding Art27/27a)					
2026	**2027**	**2028**	**2029**	**2030**	**2026-2030**
7 324 098	7 208 131	6 981 559	6 432 406	5 298 473	**33 244 666**

The process for determining and approving the free allocation for the 2026-2030 period was finalised on 3 August with the adoption of the Commission Decision on the National Allocation Tables. Therefore, the final the number of allowances not allocated to the CBAM phase out, the free allocation buffer or due to conditionalities were not available in time to be included in the auction calendars for 2027, which were published on 30 July 2026.

These allowances will be reflected in future auction calendars, unless decided otherwise by co-decisionmakers in the context of COM proposal (2026) 619.

3.4. Carbon Border Adjustment Mechanism

As part of the Fit for 55 package, the Carbon Border Adjustment Mechanism (CBAM) Regulation (Regulation 2023/956)[43] was adopted to mitigate the risk of carbon leakage from phasing out ETS free allocation while the EU strengthens its climate action.

In certain EU ETS-covered industry sectors (cement, aluminium, fertilisers, hydrogen, iron and steel), the CBAM will gradually replace free allocation from 2026 onwards. These sectors accounted for approximately 54% of total free allocation in 2021-2025.

By ensuring that an equivalent price is paid for the embedded carbon emissions generated in the production of certain goods imported into the EU, the CBAM ensures that the carbon price of imports is equivalent to the carbon price of domestic production (under the EU ETS), and that the EU's climate objectives are not undermined. The CBAM covers direct emissions

[42] Commission Implementing Decision (EU) 2026/1862 of 23 July 2026, OJ L, 2026/1862, 24.7.2026.

[43] Regulation (EU) 2023/956 of 10 May 2023, OJ L 130, 16.5.2023.

for all covered sectors and indirect emissions (from electricity consumed during production processes) for cement and fertilisers. Indirect emissions will not initially be considered for the sectors eligible for the indirect carbon cost aid (i.e. aluminium, hydrogen, iron and steel – see Section 4.2).

A transitional period began in October 2023, during which importers report emissions but are not yet required to make payments. It continued until the end of 2025, since when full implementation is gradually phased in.

From 2026, importers of goods in CBAM sectors to the EU need to buy and surrender certificates covering embedded emissions. To support industry in its decarbonisation efforts, the ETS Directive directs proceeds from the auctioning of phased-out free allowances to the Innovation Fund (see Section 4.3), paying particular attention to projects in CBAM sectors.

The EU is also taking steps to simplify and strengthen CBAM for its definitive phase. In June 2025, the European Parliament and Council reached a provision political agreement on a proposal to simplify CBAM. This was adopted formally in September 2025[44]. One key aspect of the proposal is to increase the exemption threshold to allow up to 50 tonnes of imported goods per importer per year to be exempt from CBAM. This exempts 90% of companies while still covering 99% of emissions. Additionally, in December 2025, the Commission proposed two additional pieces of legislation to further protect EU-based producers from potential carbon leakage. Firstly, the Commission proposed to extend from 2028 onward CBAM to 180 downstream goods that heavily rely on aluminium and steel, such as washing machines, industrial radiators, and machines for casting. This will ensure that importers do not circumvent CBAM by switching from base materials currently subject to CBAM to downstream goods that were not currently CBAM regulated. Additionally, the Commission proposed to set up Temporary Decarbonisation Fund (TDF), in order to address remaining carbon leakage in ETS sectors that are trade intensive. TDF will address the competitiveness loss in third-country markets where EU goods might be supplanted by cheaper, more emission-intensive alternatives, potentially increasing global emissions. The fund will reimburse a portion of the EU ETS carbon costs for goods still facing carbon leakage risks, with support contingent upon demonstrated decarbonisation efforts[45].

3.5. Adjustment of supply through the Market Stability Reserve

The Market Stability Reserve (MSR) serves as a rule-based instrument within the EU ETS. It addresses significant imbalances between supply and demand for allowances in the carbon market. Specifically, the MSR operates through two core functions:

- It reduces the supply of allowances in the market when there is a surplus, by placing allowances that would otherwise be auctioned into the reserve.

[44] Commission welcomes political agreement to simplify and strengthen the carbon border adjustment mechanism, DG Climate Action, 18.6.2025.

[45] Commission strengthens the Carbon Border Adjustment Mechanism, 17 December 2025.

- It increases the supply of allowances in the market when there is shortage, by releasing allowances from the reserve.

MSR operations are triggered by pre-set thresholds based on the total number of allowances in circulation (TNAC). Each year, the Commission publishes the TNAC for the preceding year. This figure determines whether allowances are placed in, or released from, the reserve.

Any adjustments to auction supply are implemented over the 12 months following publication of the TNAC. The Communication on the TNAC for 2025 was published on 29 May 2026[46].

In 2025, the TNAC stood at 1 023 million allowances. When the TNAC is between 833 million and 1 096 million allowances, the number of allowances placed into the MSR is the difference between the TNAC and 833 million. As a result, a total of 190 million allowances will be placed in the MSR from 1 September 2026 to 31 August 2027. The corresponding reduction in auction volumes are reflected in the revised auction calendars published on 30 July 2026[47].

In accordance with Article 5a of Decision (EU) 2015/1814, allowances in the MSR above 400 million are invalidated. On 1 January 2025, the reserve contained 400 million allowances. The reserve also contained 400 million allowances on 1 January 2026, following invalidation of 270 million allowances in 2025[48]. Since 2023, the MSR has invalidated a total of 3.4 billion allowances to control the historical surplus of allowances. However, in April 2026, the Commission proposed an amendment to the MSR Decision to stop the invalidation mechanism. Until this amendment enters into force, the number of allowances placed into the reserve will continue to be calculated under Article 1(5) of the MSR Decision, with one twelfth added each month, consistent with the reserve's mode of operation since its foundation.

3.6. Supervision of the primary and secondary market through market oversight

The EU carbon market is subject to robust market oversight rules enshrined in EU financial markets. It consists of a primary market, where emission allowances are auctioned to market participants and a secondary market where spot and derivative contracts of emissions allowances are traded among market participants. Both spot and derivatives in emissions allowances are classified as financial instruments under MIFID II – the Directive on markets in financial instruments (Directive 2014/65/EU)[49]. This classification is also reflected in secondary legislation, including the Auctioning Regulation, which oversees the primary market (auctions of allowances).

[46] https://climate.ec.europa.eu/news-other-reads/news/190-million-eu-ets-allowances-be-placed-market-stability-reserve-between-september-2026-and-august-2026-05-29_en.
[47] https://climate.ec.europa.eu/news-other-reads/news/revised-2026-and-2027-eu-ets1-auction-calendars-published-2026-07-30_en
[48] As specified in the MSR decision (2015/1814), following each year's TNAC publication, allowances are placed into the MSR over 12 months beginning 1 September. Therefore, the number of allowances placed into the MSR during the calendar year 2025 is determined by the TNACs of 2024 and 2025 on a pro rata basis.
[49] Directive 2014/65/EU of 15 May 2014, OJ L 173, 12.6.2014. See consolidated version.

Supervision of the EU carbon market is shared between the financial authorities of all Member States[50], under the coordination of the European Securities and Markets Authority (ESMA). ESMA monitors market participants' behaviour through extensive reporting and transparency requirements. In addition, other financial markets rules apply to the trading of emission allowances such as rules preventing market abuse and insider dealing (Regulation 596/2014)[51] which obliges market participants to immediately report suspicious orders and transactions. National authorities in turn have the power to respond with remedial action or penalties if they identify market abuse.

Following the 2023 revision of the ETS Directive, ESMA was tasked with monitoring and regularly assessing the functioning of the EU ETS covering the primary market of auctions and trading on the secondary markets. In their consecutive reports since 2024 on the monitoring of EU carbon markets[52], ESMA found no significant issues in the integrity and transparency of the market.

The most recent 2026 report[53] published on 9 July 2026, based on market data from 2025 and the first quarter of 2026, illustrates the robust functioning of the European carbon market for the third year in a row. In 2025, the annual average price of EU emission allowances (EUAs) stood at EUR 74 per tonne of CO_2-equivalent emissions, representing an increase of 13% compared with 2024. Prices rose gradually during the second half of the year and reached a two-year high of EUR 90/tCO_2 in January 2026. The increase in EUA prices in 2025 was driven primarily by expectations of lower supply due to a tighter cap and reduced future auction volumes.

Overall, ESMA findings show that the European carbon market operates transparently with high levels of integrity. The auctions of emission allowances and trading dynamics remained largely stable compared to previous years, with the market organised in a way that facilitates the flow of emission allowances from financial intermediaries to non-financial firms with compliance obligations.

Auctions generate significant revenues. In 2025, 589 million allowances were auctioned, generating approximately EUR 43 billion, an 11% increase, mainly due to higher prices of emission allowances.

While concentrated, auctions remain competitive and stable over time. In 2025, no auctions were cancelled and all have been oversubscribed, with an average of 24 participants and an average cover ratio[54] of 168%. ESMA also reported that auctioned volumes remained concentrated among a limited number of participants, with almost 90% of emission allowances acquired by 10 bidders. Nevertheless, auctions are competitive and there is a very limited price difference as compared to the secondary market.

[50] See the list of national competent authorities responsible under the Regulation on market abuse.
[51] Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (OJ L 173, 12.6.2014). See consolidated version.
[52] ESMA Market Report on EU Carbon Markets - 2024 (ESMA50-43599798-10379, 7.10.2024), and 2025 (ESMA50-481369926-30552, 22.10.2025).
[53] ESMA Market report on EU Carbon Markets -2026 (ESMA50-481369926-34622, 9.07.2026).
[54] The cover ratio (or bid-to-cover ratio) in EUA auctions is a key indicator of market demand. It is calculated by dividing the total volume of bids submitted by the volume of allowances actually auctioned. A cover ratio greater than 100% indicates that demand from bidders exceeded the available supply.

Trading activity in the secondary market of emission allowances remained broadly stable in 2025, with a total of 13.8 billion tonne of CO_2-equivalent emissions exchanged across 4.4 million transactions. Trading on official exchanges continued to account for almost 90% of all secondary market trading, while trading outside of official exchanges (OTC[55]) declined. The total monetary value of emission allowances and associated derivatives exchanged increased by 9% compared with 2024, reaching EUR 777 billion, mainly due to higher prices. The most important market participants remained investment firms and credit institutions, which accounted for 62% of overall trading volumes, followed by operators (25%).

Investment funds which are associated with speculative behaviour remain a small part of the market (12%). The vast amount of small and medium sized compliance entities prefer to use financial intermediaries to acquire allowances and therefore do not participate in the primary or secondary market of emission allowances. This preference is largely explained by the infrequent or smaller-scale nature of demand for emission allowances, making it more cost-effective to make use of financial intermediation.

4. A market generating revenues for decarbonisation and just transition

4.1. Use of ETS revenues by the EU Member States

The sale of allowances in the EU ETS auctions raises substantial revenues for Member States to support climate action and energy transformation. In 2025, the total auction revenue amounted to EUR 43.2 billion.

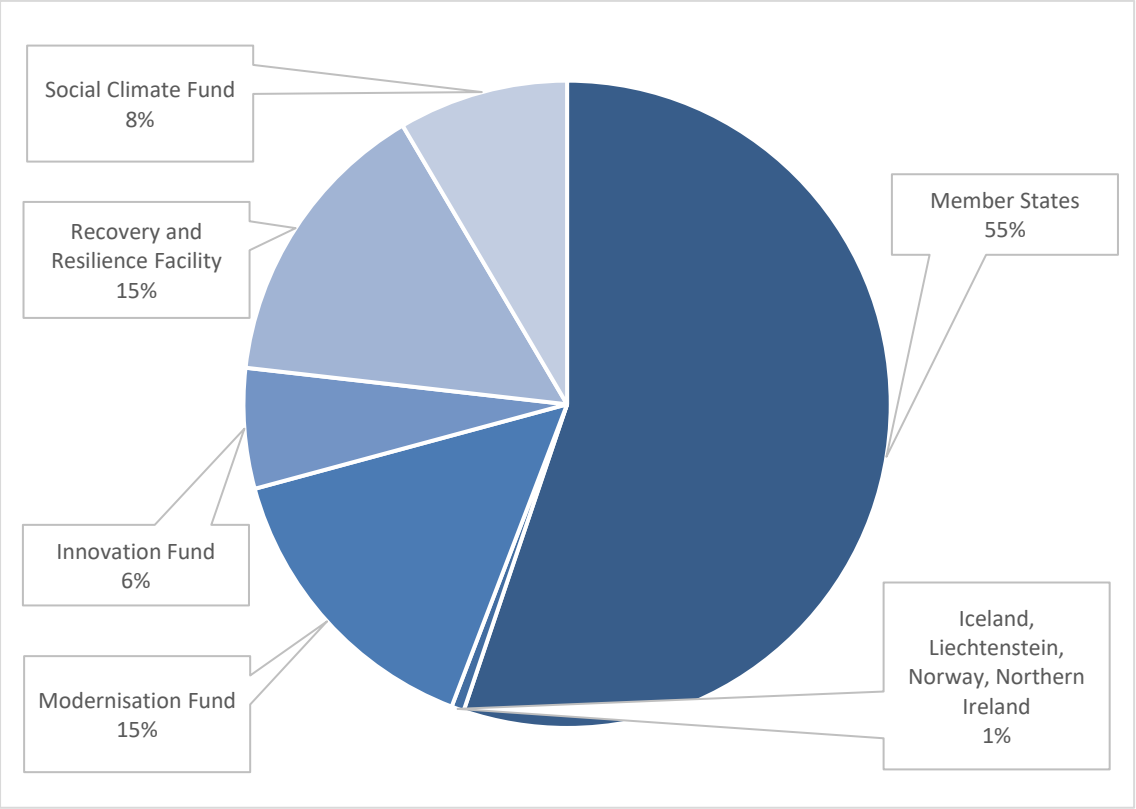
EUR 23.9 billion went directly to the Member States and EUR 0.3 billion went to Iceland, Liechtenstein, Norway and Northern Ireland.

EUR 6.5 billion went to the ETS Modernisation Fund, EUR 2.6 billion went to the ETS Innovation Fund and the EUR 6.4 billion went to the Resilience and Recovery Facility to fund the REPowerEU plan, which Member States use to advance the clean energy transition and boost energy security – by implementing the reforms and investments included in the REPowerEU chapters of their resilience and recovery plans**.** 2025 was the first year in which allowances were auctioned for the Social Climate Fund, raising EUR 3.7 billion to support vulnerable households, transport users and micro-enterprises in the transition to cleaner and more affordable energy and transport.

Figure 6 shows the distribution of the total 2025 auction revenue. Detailed revenue data per country and per fund is included in Section 3 of the accompanying staff working document.

[55] Over the Counter Trading.

Figure 6. Distribution of 2025 ETS auction revenue (EUR 43.2 billion) between the national budgets, the Innovation, Modernisation, and Social Climate Funds and the Recovery and Resilience Facility.



Under Article 10(3) of the ETS Directive, Member States are obliged to use 100% of the revenue collected (or an equivalent financial value) to support climate action and energy transformation, except for any revenue that Member States spend in aid for electricity-intensive industries for indirect carbon costs (see Section 4.2, not all aid is financed from auction revenues). The specific purposes are listed in Article 10(3) and include industrial decarbonisation, energy transformation, clean tech technologies, adaptation to climate change, decarbonisation of the transport sector and actions for just transition. The Commission closely monitors compliance with this new obligation to ensure all ETS revenue is truly spent on these purposes. The obligation covers the revenue from the auctioning of additional allowances due to the inclusion of maritime transport in the EU ETS, where Member States are encouraged to increase their contribution to the protection, restoration and better management of marine-based ecosystems, marine protected areas in particular. Also, Member States that receive higher volumes of additional allowances due to their high ratio of shipping companies compared to the population, should use the corresponding share for maritime-related purposes.

Member States report to the Commission every year under the Governance Regulation (Regulation 2018/1999) on how they use their ETS revenue. These reports are based on

templates and submitted via Reportnet 3 managed by the European Environment Agency[56]. They are publicly available on the agency's website. Reporting must be sufficiently detailed to assess compliance with the spending target. Otherwise, the Commission may request a Member State to resubmit the information and fill in any gaps.

The EUR 23.9 billion that Member States collected in ETS revenue in 2025 is subject to a reporting obligation on its use, due by 31 July 2026. However, Italy and Cyprus, which together collected EUR 2.7 billion in 2025, have not yet submitted their reports. Of the EUR 21.1 billion Member States reported on, EUR 16.0 billion falls under the obligation under Article 10(3)[57]. This is because EUR 5.1 billion of the 2025 revenue (24% of the revenue covered by submitted reports) was reported to have financed aid for electricity-intensive industries for indirect carbon costs. While all relevant ETS revenue must go to climate- and energy-related investments, this budget does not need to be spent in full in the same year that the revenue is generated. Of the EUR 16.0 billion in 2025 revenue reported on for Article 10(3) purposes, Member States disbursed 84% (EUR 13.5 billion) in 2025 and committed 3% (EUR 0.4 billion) to specific actions. Future annual reports will detail the allocation and disbursement of the remaining EUR 2.1 billion, alongside EUR 2.7 billion in currently unreported 2025 revenues from Italy and Cyprus.

Table 5 provides a breakdown of the reported uses of the EUR 23.9 billion of ETS revenue collected by Member States in ETS revenue in 2025.

Table 5. Breakdown of the EUR 23.9 billion[58] in ETS revenue collected by Member States in 2025.

Allocation of ETS revenue collected by Member States in 2025	**Revenue (EUR billion)**
Revenue collected but reporting not submitted at time of writing (Italy and Cyprus)	2.7
Revenue reported as used to finance aid for indirect carbon costs	5.1
Revenue subject to the Article 10(3) obligation and **disbursed** in 2025	13.5
Revenue, subject to the Article 10(3) obligation and **committed** but not yet disbursed in 2025	0.4
Revenue collected by Member States in 2025, still to be allocated, disbursed and reported	2.1
Total 2025 ETS auction revenue collected by Member States	**23.9**

Of the EUR 13.5 billion in revenue reported as generated and disbursed in 2025 on Article 10(3) purposes, EUR 5.4 billion was used for projects in the 'Energy supply - renewables, grids and storage', EUR 1.5 billion for 'Energy efficiency, heating and cooling in buildings' and EUR 2.5 billion for 'Public transport and mobility'. Examples include the financing of renewable energy support costs in the Spanish electricity system, the Romanian programme

[56] Use of ETS auctioning revenues - Reporting year 2026 – GovReg, Reportnet3, European Environment Agency
[57] Up to 4 June 2023, Member States were encouraged to use at least 50% of the revenue collected to support decarbonisation and energy transformation investments. For the revenue collected from 5 June 2023 onwards, the obligation to use 100% (or equivalent financial value) to support decarbonisation and energy transformation applies.
[58] Figures do not sum exactly to the total due to rounding.

funding the purchase and installation of photovoltaic systems and electricity storage for consumers connected to the national distribution grid, MaPrimeRénov' grants for the energy renovation of housing and the replacement of heating systems in France, the Austrian 'Raus aus Öl und Gas' scheme supporting oil, gas and coal heating replacement in family homes, and electrification and modernisation of railway lines in Czechia.

In addition, Member States reported having used EUR 1.7 billion for projects in 'Industry decarbonisation (low-carbon technologies, CCUS and energy efficiency in industrial sector excl. energy sector)', including the German federal programme for energy and resource efficiency in business and industry, which supports high-efficiency cross-cutting technologies, process optimisation, waste-heat use and renewable process heat, and the Swedish Industrial Leap, which supports studies, research, pilots, demonstrations and investments to cut industrial emissions or generate negative emissions.

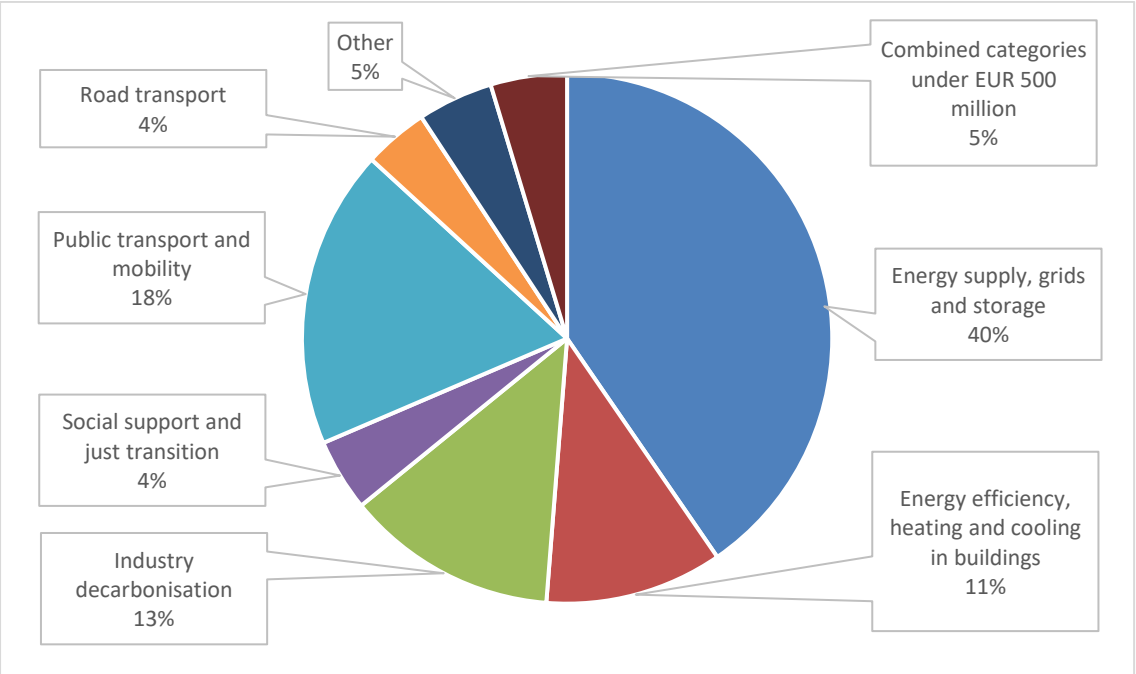
Member States also reported having used EUR 0.6 billion for measures and projects in 'Social support and just transition', including the Greek Energy Transition Fund, which finances electricity-bill subsidies for households and businesses, and income support for workers affected by the Pêgo coal plant closure in Portugal.

Member States further reported having used EUR 0.5 billion for measures in 'Road transport (cars, trucks)', including the German programme for the further development of electromobility, which supports market-oriented research and development across the electromobility value chain, and the Swedish climate premium, which supports certain electric buses, light electric trucks, electric or biogas heavy trucks and low-emission work machines.

For EUR 0.6 billion in 2025 disbursements, Member States reported actions that either did not fit any categories in the templates or fitted multiple categories (in these cases, Member States reported 'Other' for the category). Examples include the German National Climate Initiative, which funds climate action projects in municipalities, educational institutions and businesses, ranging from mobility and lighting to cooling systems and water management.

Figure 7 summarises Member States' use of ETS revenues in the different categories.

Figure 7. Breakdown per category of the EUR 13.5 billion of the 2025 ETS auction revenue reported as disbursed.



Combined categories under EUR 500 million are (in EUR million): adaptation (283), international purposes and international climate finance (109), maritime transport (107), LULUCF, agriculture and land-based removals (69), administrative expenses (60), waste management (1), aviation (0), permanent removals (0).

The EU ETS auction revenue has made an essential contribution to these and many other impactful climate action and energy transformation projects in the Member States. These projects have not only helped reduce emissions but also ensure that the green transition is just. Importantly, Member States must make an effort to ensure the visibility of the source of funding for the actions or projects funded from ETS revenue to show the EU ETS' contribution to progressive decarbonisation and the just transition. For most actions reported for 2025 it is unclear whether the EU ETS is explicitly indicated and publicised as the funding source, something the Commission intends to follow-up. An overview of how each Member State used their ETS revenue is included in the 2026 Climate Action Progress Report, in the accompanying staff working document.

4.2. Aid for indirect cost compensation

The ETS Directive encourages Member States to adopt financial measures to support electro-intensive industries at risk of carbon leakage due to carbon costs passed on through electricity bills (indirect carbon costs – ICC). It also encourages each Member State to limit this support to 25% of national auction revenues[59].

[59] See Article 10a(6) of the ETS Directive.

The support provided by Member States to compensate ICC (ICC compensation) is subject to specific State aid guidelines which set out the sectors and eligible subsectors and the formula for awarding the aid (a combination of output level, carbon price, electricity consumption efficiency benchmarks and the maximum-permitted aid intensity level). It also comes with the condition that beneficiaries should re-invest part of the aid in projects that lower their direct or indirect carbon footprint (thus reducing their exposure to carbon leakage risk)[60]. In December 2025, the Commission amended the State aid guidelines with a view to addressing the increased risk of carbon leakage for additional electro-intensive industries and allowing for increased aid intensity to existing sectors and subsectors[61]. Every Member State that provides ICC compensation has notified its State aid scheme to the Commission for assessment and received acknowledgement of the scheme's compatibility with the single market. If a Member State wishes to extend ICC compensation to the newly added sectors and subsectors, an amended scheme will have to be notified.

In 2025, the same 15 Member States provided ICC compensation as in the previous year. Table 6 and Table 7 summarise the payments made by Member States in 2025 to compensate for costs incurred in 2024, and compares them to 2024 auction revenues. The total payments amounted to EUR 6.9 billion, which is an increase of 20% compared to the previous year, while the number of installations receiving aid increased by 5% to 1 962[62].

Table 6. Aid amounts paid out in 2025 from the ETS auction revenue for indirect costs incurred in 2024.

Member State	Compensation disbursed in 2025 for indirect costs incurred in 2024 (million EUR)	Change compared to previous year		Number of beneficiaries (installations)
		million EUR	% change	
Belgium	279.2	+29.3	+12%	55
Czechia	90.7	+30.3	+50%	32
Finland	149.9	+6.7	+5%	57
France	1 048	+138.7	+15%	322
Germany	2 783.7	+388.7	+16%	729
Greece	272.4	-14.6	-5%	54
Italy	611.9	+446.4	+270%	262
Luxembourg	41.5	+3.9	+10%	4
Netherlands	159.8	+12.5	+8%	48

[60] Communication from the Commission. Guidelines on certain State aid measures in the context of the system for greenhouse gas emission allowance trading post-2021 (2020/C 317/04).
[61] C/2026/196 Communication from the Commission amending the Guidelines on certain State aid measures in the context of the system for greenhouse gas emission allowance trading post-2021.
[62] This section covers ICC compensation paid in 2025 to compensate for costs incurred in 2024. The amount of compensation in this section differs from the figure given in Section 4.1 because that section covers Member States' spending from 2025 revenues, with nationally specific timing regarding when the funds are allocated and spent.

Poland	688.1	+73.5	+12%	97
Portugal	50.0	+25.0	+100%	26
Romania	76.51	-40.2	-34%	31
Slovakia	35.5	-22.8	-39%	9
Slovenia	25.2	-0.2	-1%	16
Spain	597.9	+315.1	+111%	220
Total	**6 910**	**+1 392**	**+20%**	**1 962**

Source: reporting by Member States

The year-on-year increase in aid payments outpaced the 5% to 7% increase in the price of allowances over the same period[63]. This demonstrates that the main driver for the increase was an expansion in aid provision by Member States. The largest increases in proportional terms came from Italy, Spain, Portugal and Czechia, while the largest increases in absolute terms came from Italy, Germany, Spain and France. Aside from the increased carbon price, the compensation paid per Member State can increase for nationally specific reasons. These can include higher production levels in the eligible sectors or a higher aid intensity because of a higher available budget, while remaining within the parameters of the approved State aid scheme. Where required, amendments to national State aid schemes are notified to the European Commission for approval.

Table 7 shows the share of national auction revenues spent on ICC compensation per Member State. The average (median) share of revenue used for ICC compensation was 24%, compared to 15% in the previous year. This higher share of national auction revenues can be attributed to a mix of EU-wide and national factors.

Table 7. Indirect cost compensation payments by Member States expressed as percentage of 2024 national auction revenues

Member State	Auction revenue 2024, excl. aviation allowances (million EUR)	ICC compensation expressed as share of auction revenues (%)
Belgium	527	53%
Czechia	658	14%
Finland	409	37%
France	1 485	71%
Germany	5 461	51%
Greece	1 070	25%
Italy	2 558	24%
Luxembourg	4	817%
Netherlands	909	18%

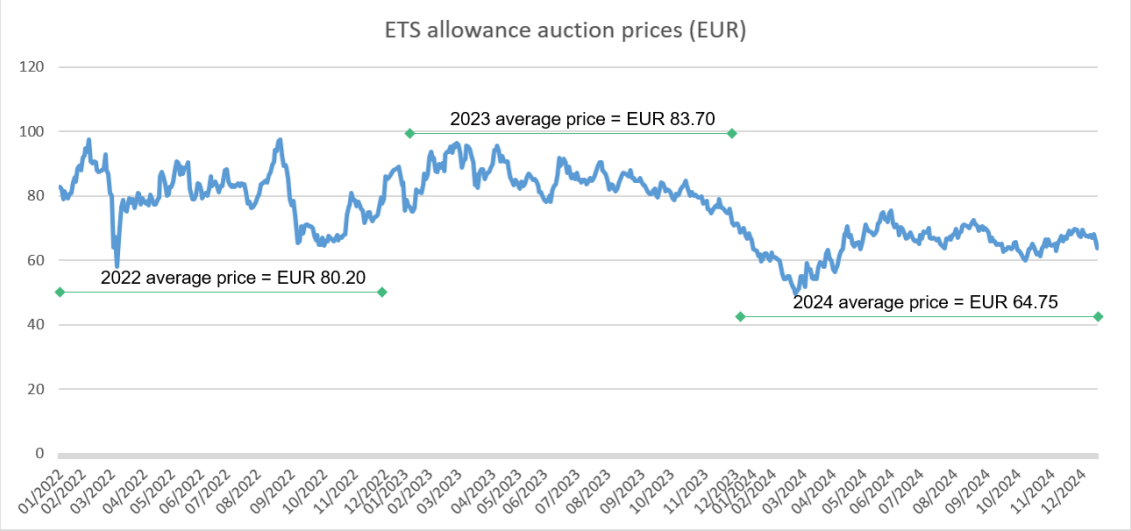
[63] ICC compensation in a given year is based on the average one-year forward price for delivery in December of the year for which the aid is granted, as observed during the previous year. This means that aid disbursed in 2025 is based on the 2024 forward price traded in 2023. The price used can vary slightly between each Member State depending on the EU carbon exchange used. Increases of 5% and 7% were reported in the annual ICC reports produced by Finland and Germany respectively.

Poland	3 830	18%
Portugal	519	10%
Romania	628	12%
Slovakia	291	12%
Slovenia	133	19%
Spain[64]	2 511	24%

Source: reporting by Member States, EEX auctions

An important EU-wide factor is that allowance prices fell year-on-year by around EUR 20 between 2023 and 2024. This movement artificially boosts the percentage share metric because of how it is calculated. The price used to set the compensation is based on 2024 contracts traded in 2023 (the higher price), whereas revenues are based on auctions occurring in 2024 (the lower price) as shown in Figure 8. For comparison the 24% median share would be only around 18% if there had been no change in auction prices between 2023 and 2024[65].

Figure 8. average ETS allowance auction prices for 2023 and 2024



Source: EEX auctions
Note: prices exclude auctions of aviation allowances

The opposite effect is also possible and has occurred in previous years. When allowance prices increase year-on-year this lowers the auction share metric compared to a counterfactual constant price situation.

The ETS Directive requires Member States that spend more than 25% of their auction revenue on indirect costs in any year to publish a report explaining why they exceeded this

[64] Spain indicated that only EUR 244 million of the compensation provided in 2025 came from ETS revenues. On this basis 10% of auction revenues were used for ICC compensation, and compensation funded from other sources was equivalent to 14% of revenues.

[65] The 18% figure uses an average price of EUR 83.70 for both compensation and revenues. For more detailed analysis of the price timing effect, see Section 7 of *State aid for Indirect CO_2 Costs of European Emissions Trading (Electricity Price Compensation) in Germany for 2024*, German Emissions Trading Authority (DEHSt) EPC Report 2024. https://www.dehst.de/SharedDocs/downloads/EN/spk/Auswertungsbericht_2024_Englische_Version.pdf?__blob=publicationFile&v=4

threshold. For the costs incurred in 2024, six Member States provided ICC compensation above this level: Belgium, Finland, France, Germany, Greece and Luxembourg.

Several Member States identified the above-mentioned price effect as a contributing factor. In addition, France attributed the high proportion of auction revenue paid to a high national share of low-carbon electricity generation, leading to relatively low auction revenues compared to the share of electro-intensive industries. Finland mentioned that it has a large energy-intensive industry sector and pointed out that its national scheme limits aid intensity to 25% and total compensation to EUR 150 million (for all beneficiaries combined). Germany also noted that production increased year-on-year in eligible sectors.

In the case of Luxembourg, expenditure continued to far outweigh the country's total auction revenue, in particular because it imports around two thirds of its electricity and does not operate large fossil fuel plants that would generate substantial auction revenues.

The trend in the future ICC share of revenues will be driven by several factors. Demand for compensation may increase in line with the above-mentioned amendment to the State aid guidelines adding new sectors and increasing aid intensities, though this also depends on the extent to which each Member State wishes to use their ETS revenues (or other national resources) for this purpose. Demand for compensation could also vary positively or negatively as eligible industries both electrify and become more energy efficient. Over time, emission intensity is expected to fall further. Auction revenues will be affected by falling volumes over time due to the linear reduction factor, but they can still vary year-on-year for reasons such as operation of the Market Stability Reserve and expansion in the scope of the ETS itself.

In the context of the ETS review presented on 17 July 2026, the Commission has proposed that the State aid approach to indirect carbon leakage risks continue, but that the current reporting framework should be altered. Under this proposal, the current system, where Member States produce dedicated reports, would be replaced by integrating ICC reporting into the broader revenue reporting framework under the Energy Union Governance Regulation ((EU) 2018/1999)[66].

4.3. Innovation Fund

The Innovation Fund (IF) is one of the world's largest funding programmes for the development of net zero and low-carbon technologies. It aims to bring to market new, clean energy and industrial technologies for the EU to reach its climate targets, stay competitive and reinforce resilience. The IF's budget is approximately EUR 40 billion between 2020 and 2030 (based on a carbon price of EUR 75 per tonne CO_2e), sourced from the auctioning of allowances under the EU ETS. Projects located in the European Economic Area (EEA),

[66] See recital 42 of the legislative proposal presented in COM(2026) 616 final. Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC and Decision (EU) 2015/1814 as regards driving competitiveness and cost-effective decarbonisation.

meaning EU Member States as well as Iceland, Liechtenstein and Norway, are eligible for support from the IF.

The Commission reports in more detail on the implementation of the IF separately in the Annual Progress Report. The fourth progress report on the IF is expected to be published in Q4 of 2026.

Since 2020, the Commission has launched 14 calls for proposals, including four auctions. By the end of September 2026, the IF finances around 238 ongoing projects corresponding to around EUR 13 billion. The funded projects are expected to achieve around 1 billion tonne in total absolute CO_2e emissions avoidance during their first 10 years of operation.

In December 2025, the Commission opened three calls for proposals with a total budget of EUR 5.2 billion:

- **Net-zero technologies**: With a budget of EUR 2.9 billion this call received 358 proposals from 27 countries in the European Economic Area (EEA) when it closed in April 2026. It covered five different topics including large-, medium- and small-scale projects as well as dedicated topics for clean-tech manufacturing of components and pilot projects. The call received proposals requesting six times the available budget, showcasing a strong project pipeline of EU decarbonisation projects.

- **Hydrogen auction:** The third round of the European Hydrogen Bank auction for production of renewable fuels of non-biological origin (RFNBO) hydrogen or electrolytic low-carbon hydrogen had a budget of EUR 1.3 billion across three topics. The auction closed in February 2026 with 57 bids, of which 13 projects were selected for grant agreement preparation. These projects will receive a total of EUR 1.24 billion of EU funding and are expected to deploy around 1.16 giga-watts (GW) of electrolyser capacity and produce over 1.4 million tonnes of hydrogen over 10 years. The grant agreement signatures are expected in the second half of 2026.

- **Decarbonised industrial process heat auction**: For the first time, this pilot auction supported electrified and direct-renewable heat production, with a budget of EUR 1 billion. This auction is a pilot for the future Industrial Decarbonisation Bank. Support is provided to projects which can deliver the most cost-effective CO_2 abatement of industrial process heat. In May 2026, 65 projects from 10 EEA countries were selected for grant agreement preparation, with a total expected capacity to produce around 16.3 terra-watt hours (TWh) of decarbonised heat over the first 5 years of operation[67].

New calls for proposals are planned for the end of 2026. This includes the Net-zero technologies call, the fourth hydrogen auction and the second heat auction as well as a

[67] European Commission, '*Commission awards €400 million to European projects to decarbonise heat production*', Press release, 22 May 2026.

dedicated call for Maritime projects and a call for Small-and-Medium sized Enterprise-led projects.

Since 2023, the 'Auction-as-a-Service' feature[68] is available under the IF's auctions and 'Grants-as-a-Service'[69] is available under the Net-zero technologies call since 2024. Projects passing all evaluation thresholds which cannot be funded from the call's budget may still receive support from Member States in case they have made an additional budget available under the call/auction. The Commission provides the evaluation 'as-a-Service', allowing for reduced administrative efforts at national level, and the alignment with the Commission's calls facilitates State aid approval. In 2025, Germany and Spain contributed around EUR 1.7 billion to the IF 25 Hydrogen auction. To date, Austria, Germany, Lithuania and Spain have participated in the feature.

With the goal of increasing the maturity of innovative projects, the European Investment Bank (EIB) is administrating Project Development Assistance (PDA). While eligibility for the IF is a prerequisite, project promoters can approach the EIB directly to receive support ('open PDA'). In total, around 80 projects have signed and completed support agreements to date, whereas around 55 others have signed their PDA agreements and the support is currently ongoing.

Since 2023, all projects meeting the minimum thresholds for all award criteria in the grant calls receives a Strategic Technologies for Europe Platform (STEP) Seal[70], a quality label helping projects obtain additional or alternative funding. To date, 316 projects have received the label, more than any other funding programme in the scope of STEP.

The IF also provides blending operations, combining Innovation Fund resources with other EU financial tools. So far, two top-ups have been launched. Firstly, the EU-Catalyst partnership between the Commission, the European Investment Bank (EIB), and Breakthrough Energy[71]. Secondly, the Battery top-up provides support to battery value chain projects through an Innovation Fund top-up guarantee to InvestEU since December 2024.

Two new top-ups are under preparation in 2026. One top-up was announced in the Commission's Small Modular Reactors (SMRs) Strategy, providing EUR 200 million to support initial commercial units of innovative nuclear technologies. The second top-up support Critical Raw Materials (CRMs) in the battery value chain where InvestEU should provide up to EUR 300 million.

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[68] European Commission, '*Auctions-as-a-Service for countries in European Economic Area (EEA): Concept Note'*, Version 0.5, 2 December 2024.

[69] European Commission, '*Grants-as-a-Service (Gaas) possibility under the Innovation Fund (IF) 'regular' grants calls: Concept Note*', Version 0.1, 27 October 2025.

[70] European Commission, '*Strategic Technologies for Europe Platform (STEP)*' https://strategic-technologies.europa.eu/index_en., 26 June 2026.

[71] Global network founded by Bill Gates and other investors to accelerate innovation in sustainable energy and support the commercialisation of technologies needed for net-zero emissions. More information on the partnership can be found on the Commission's website. In Q1 2026, the partnership was discontinued, still maintaining support for three projects.

In June 2026, the Battery Booster Facility[72] was established. The Facility aims to mobilise up to EUR 1.5 billion from the IF to support European battery cell producers' ramp-up phase. Projects may receive interest-free loans as support until they reach full commercial operation. The Commission launched the call for proposals on 28 July 2026.

Additionally, in 2025 the Commission carried out an evaluation of the Innovation Fund for the 2020-2024 period. The evaluation was supported by an external study and used desk research, surveys, interviews, case studies, and a cost-benefit analysis. The study concluded that the Innovation Fund remains key for achieving the EU's 2030 and 2050 climate targets and recommended simplifying procedures, strengthening coordination with national schemes and other EU instruments, broadening sectoral and geographical coverage, and improving impact monitoring. The evaluation Staff Working Document was published together with the proposal for the EU ETS Directive review on 17 July 2026 [73].

4.4. Modernisation Fund

The Modernisation Fund (MF) is a solidarity instrument which uses revenues from the EU ETS to help lower-income Member States in their transition to climate neutrality. Its 13 beneficiary Member States are Bulgaria, Croatia, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia and Slovenia. The MF's budget comes from auctioning a share of the EU ETS cap (corresponding to 438 million allowances), allocated among the beneficiary Member States according to a fixed key[74]. In addition, six beneficiary Member States have transferred 320 million allowances from phase 3 of the EU ETS (2013-2020) to the Modernisation Fund. This brings its total size to over 750 million allowances.

The Modernisation Fund investments support the modernisation of energy systems and the deployment of more efficient and resilient energy infrastructure, including for industry. By improving energy efficiency, strengthening security of supply and reducing dependence on imported fossil fuels, they contribute to the EU's industrial competitiveness. They also support beneficiary Member States in meeting their climate and energy targets.

The EU ETS Directive distinguishes between priority investments (PIs) and non-priority investments (NPIs). PIs, as defined in the Directive, include investments in the generation and use of energy from renewable sources, energy efficiency, energy storage, and the modernisation of energy networks. In addition, support for low-income households to tackle energy poverty and measures supporting a just transition in carbon-dependent regions are classified as PIs.

Following the 2023 revision of the EU ETS Directive, at least 80% of MF resources (or even 90% in certain cases) must be allocated to PIs. These investments benefit from a simplified

[72] European Commission, 'New Battery Booster set to inject €1.5 billion into the European battery industry', Press release, 9 June 2026.

[73] European Commission, Commission Staff Working Document, Evaluation of the Innovation Fund's operation, SWD(2026) 199 final, Brussels, [17/07/2026], available at: https://eurrn-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2026:199:FIN

[74] Annex IIb to the ETS Directive – Modernisation Fund allocation key.

approval process. Beneficiary Member States may also support investments outside the priority areas where these contribute to the modernisation of energy systems and deliver GHG emission reductions.

At the end of 2025, the Modernisation Fund supported about 250 investments (and almost 50 subsequent disbursements to schemes or large-scale projects) for a total disbursement amount of EUR 20.7 billion in all the beneficiary Member States, with the first investment approved in Portugal. Examples of investments approved in 2025 include investments in electricity storage capacity from renewable sources in Czechia, upgrading and modernising the electricity network in Greece or modernising and developing the electricity transmission and distribution network to facilitate integration of renewables in Slovenia.

The latest disbursement in July 2026 includes EUR 2.5 billion and went to 51 supported investments in 11 countries. This brings the total disbursed funding from the Modernisation Fund to around EUR 23.2 billion since January 2021. The latest deadlines for beneficiary Member States to submit investment proposals for Modernisation Fund support were 11 August 2026 for non-priority proposals and 8 September 2026 for priority proposals[75].

Additionally, the Commission carried out an evaluation of the Modernisation Fund in 2025. The evaluation was supported by an external study and combined desk research, surveys, interviews, case studies, quantitative analysis of Fund data and stakeholder consultations. It included data from the creation of the MF in 2020 to mid-2025. As the evaluation covers the early period of the MF, it focused on the MF's processes, early results and expected impacts, rather than long-term, measured outcomes. The evaluation Staff Working Document was published together with the proposal for the EU ETS Directive review on 17 July 2026[76].

4.5. ETS Decarbonisation Fund for Greece

Article 10a(9) of the ETS Directive grants Greece the right to claim up to 25 million allowances to finance a project for decarbonisation of the electricity supply of its islands[77]. In July 2026, the EIB confirmed the financial viability and socio-economic benefits of the project. The requested funding from auctioning of allowances amounts to approximately EUR 2.3 billion, which represents 60% co-financing of the total cost of the project.

The project components include:

- renewable energy and battery storage projects on the islands;

[75] Information about investments, counties and the fund can be found at the Modernisation Fund website: https://modernisationfund.eu.

[76] European Commission, Commission Staff Working Document, Evaluation, Evaluation on the operating rules of the Modernisation Fund, SWD(2026) 197 final, Brussels, [17/7/2026] available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2026:197:FIN.

[77] 25 million allowances have been set aside for possible use under Article 10a(9) of the ETS Directive (Communication from the Commission Publication of the total number of allowances in circulation in 2021 for the purposes of the Market Stability Reserve under the EU Emissions Trading System established by Directive 2003/87/EC and of the number of unallocated allowances during the period 2013-2020 2022/C 195/02, C/2022/2780 (OJ C 195, 13.5.2022).

- multi-purpose dam projects incorporating hydropower and floating photovoltaic generation;
- electricity interconnections in the Dodecanese, Cyclades and North-Eastern Aegean islands; and
- electric vehicle charging infrastructure.

To support the project and following Greece's request, a maximum of 25 million ETS allowances will be auctioned over 12 months from January 2027 to fund the project.

4.6. Social Climate Fund

The Social Climate Fund (SCF) was created alongside ETS2 to provide Member States with funding to support households and micro-enterprises that are particularly vulnerable to fossil fuel price increases but have limited means to change or reduce their energy consumption. Combined with a mandatory minimum 25% contribution by Member States to their plans, the SCF will make at least EUR 86.7 billion available over the 2026-2032 period.

4.6.1. Social Climate Plans

Significant progress was made in the implementation of the SCF. The SCF is implemented on the basis of national Social Climate Plans, which identify vulnerable groups, in particular those in energy or transport poverty, and present measures and investments to support them. The Commission endorsed 5 Social Climate Plans[78], submitted by Sweden, Lithuania, Latvia, Malta and Greece. Another 6 Plans (The Netherlands, Croatia, Slovenia, Luxembourg, Italy and Portugal) have been officially submitted and are in the process of being formally endorsed. The Commission continues to work with all remaining Member States to finalise Plans tailored to their specific national circumstances.

Based on the Commissions' analysis of the Plans endorsed and officially submitted to date, the financing under these Plans represent more than EUR 20 billion in funding and cover a broad range of measures and investments[79]. Funding is allocated in a relatively balanced manner across the buildings and transport sectors: more than 90% of the fund is used for supporting long lasting investments in the decarbonisation of the buildings and road transport sectors, with a fairly balanced sectoral split, and less than 10% of the fund being devoted to Direct Income Support (DIS), well below the legal limit of 37.5%. A further 2% is allocated to Technical Assistance (TA), which is within the legal ceiling defined at 2.5%.

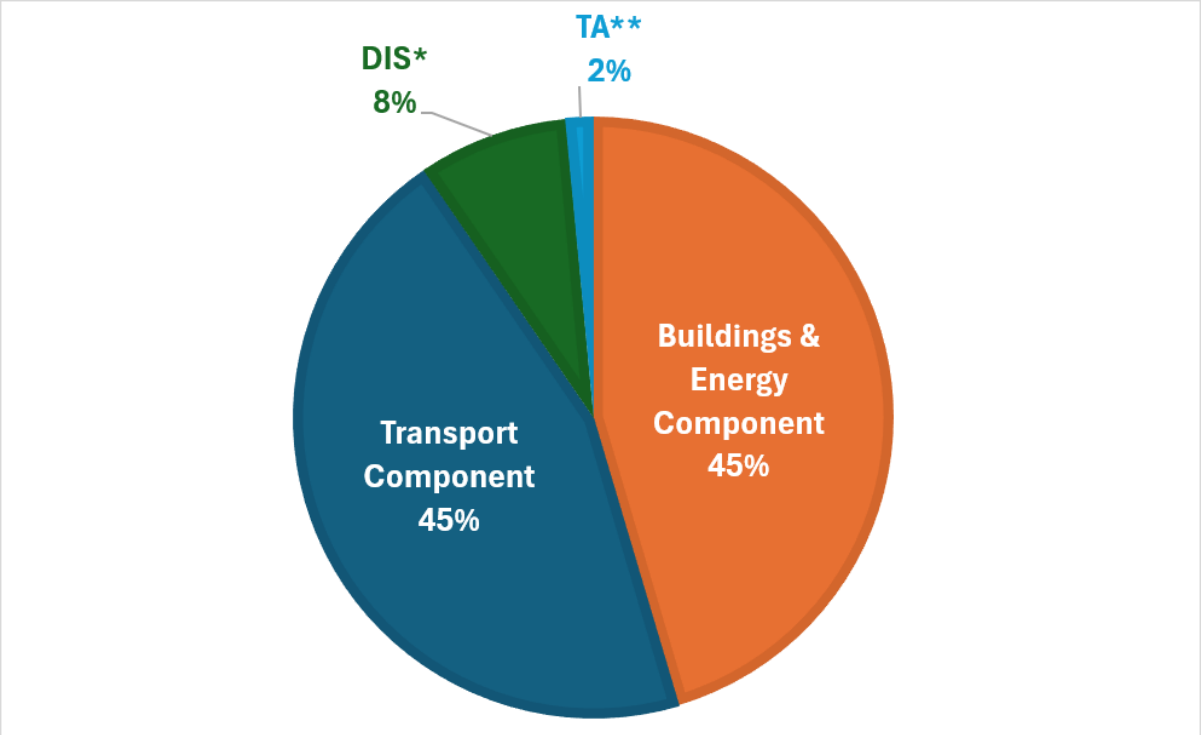
This budget allocation is consistent with identified needs. As required under the SCF Regulation, Social Climate Plans must include an analysis of the likely impact of ETS2 on vulnerable groups, together with an estimation of the size of those groups. The estimations within endorsed and officially submitted Plans amount to broadly comparable numbers of

[78] https://employment-social-affairs.ec.europa.eu/policies-and-activities/funding/social-climate-fund/social-climate-fund-national-plans_en.

[79] All figures remain provisional and subject to change in light of ongoing negotiations with Member States. Nonetheless, the current allocation patterns reflect clear and consistent trends across Member States, underscoring the diversity of national circumstances and needs that the SCF will accommodate.

vulnerable households and vulnerable transport users, at approximately 11 million and 13 million respectively. The number of vulnerable micro-enterprises in Member States covered in the analysis is estimated at approximately 850,000. The measures and investments set out in these Plans are expected to protect a total of 1.2 million households from energy poverty and at least 2.4 million vulnerable transport users from transport poverty, in addition to improving public transport services that will be accessible to all in areas with a high density of vulnerable transport users). They will also provide over 235,000 vulnerable micro-enterprises with support in both the building and transport sector.

Figure 9. Distribution of funds per component in endorsed and officially submitted Social Climate Plans

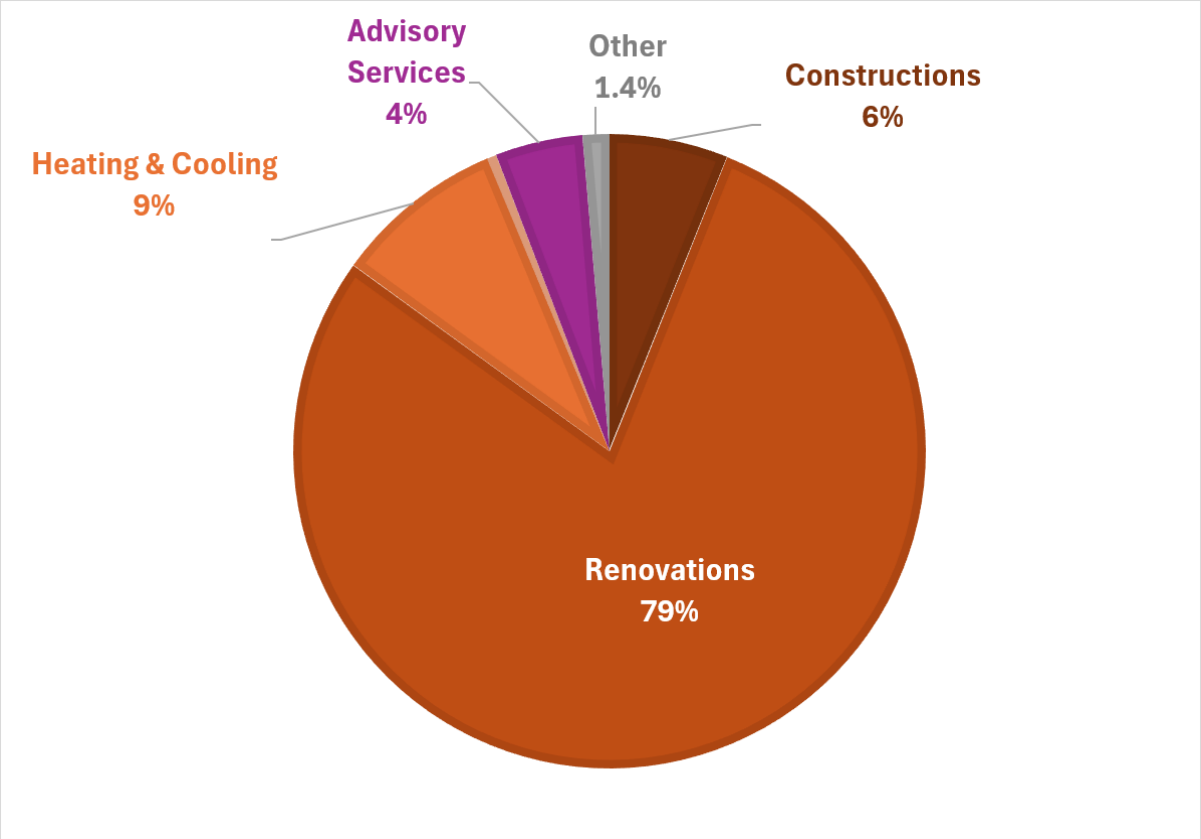


**DIS: Direct Income Support*
***TA: Technical Assistance*

4.6.2. Measures and Investments

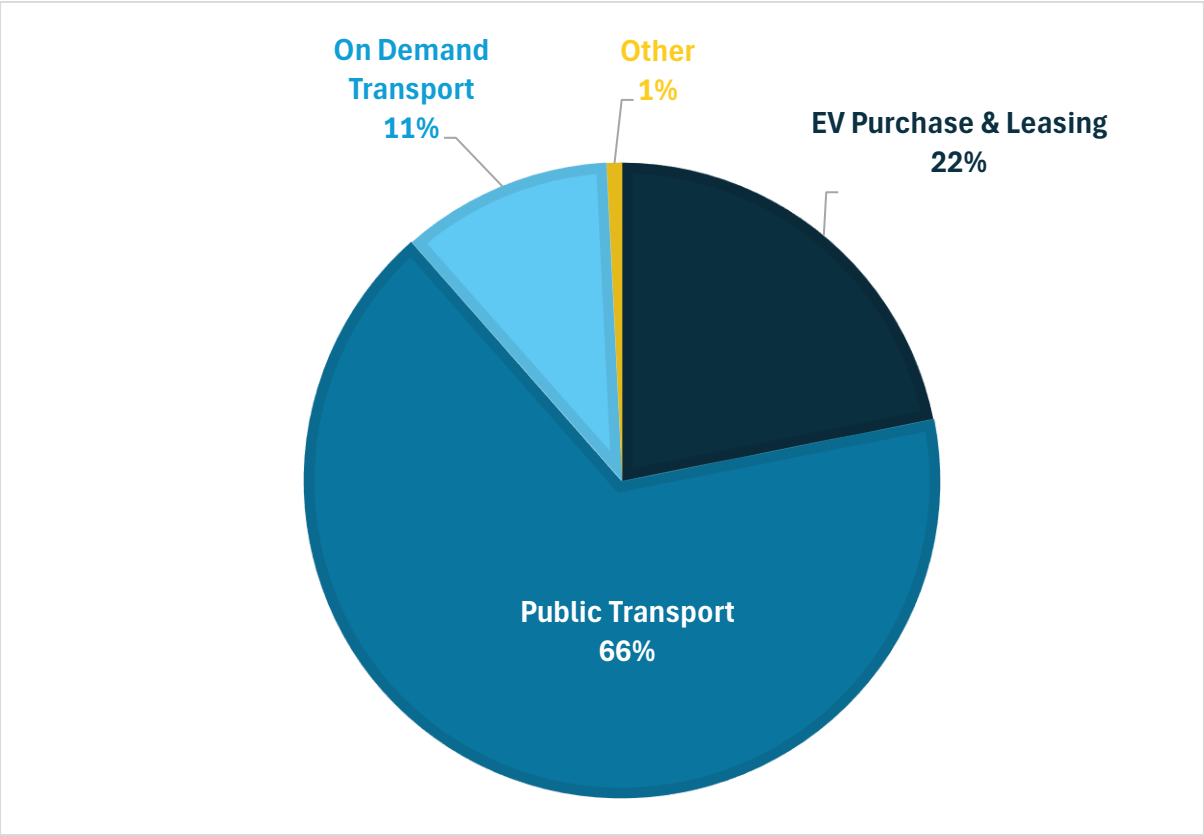
The analysis of the 11 endorsed and officially submitted Social Climate Plans reveals patterns in funding priorities. Within the buildings and energy component, renovation emerges as the priority investment area for Member States. Approximately 7.4 billion is currently earmarked by 11 Member States for renovation investments across building types and renovation intensities, including social housing. Some of these renovations go beyond basic insulation to include clean heating and renewable energy installations. Despite moderate funding need, most Member States plan to establish energy advisory services to reach and inform vulnerable groups.

Figure 10. Distribution of building investments by category in endorsed and officially submitted Social Climate Plans



In the transport sector, at least two-thirds of transport investment are directed towards improving public modes of transport, including not only electric public buses but also charging infrastructure, rail infrastructure and cycling infrastructure. Additionally, new public transport modes are being developed, most notably on-demand solutions for hard-to-reach rural areas. Nonetheless, more than a third of vehicle-related support is currently directed towards private vehicles for households and micro-enterprises. All analysed Social Climate Plans but two include support for vulnerable households or micro-enterprises to purchase electric vehicles, including micro-mobility vehicles.

Figure 11. Distribution of transport investments by category in endorsed and officially submitted Social Climate Plans



Micro-enterprises are supported in both the buildings and transport sector. Approximately 12% of funding is earmarked for micro-enterprises, amounting to approximately EUR 2.4 billion. Two thirds of this amount will provide targeted advice or financial support for commercial buildings in three Member States, while another five Member States will provide support for the acquisition of decarbonised commercial vehicles.

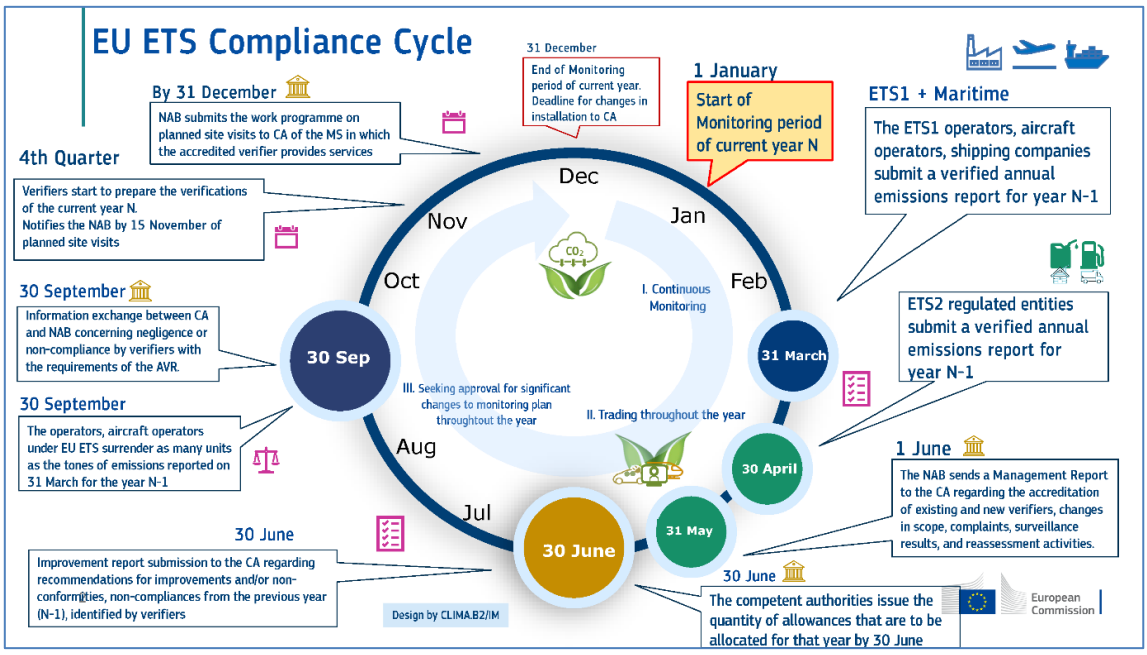
In order to enhance the effectiveness of Plans, certain Member States complement structural measures with Direct Income Support and reforms. Two Member States have officially submitted a Plan including Direct Income Support measures and total of six reforms have been identified across the analysed Plans, five in the buildings and one in the transport sector.

5. A robust compliance framework

5.1. Compliance with the EU ETS

The Commission has developed a comprehensive set of guidance documents on the monitoring, reporting and verification of emissions, as well as on the accreditation of verifiers (MRVA), under the EU ETS. These documents[80] are intended to support the consistent implementation of the system across participating countries, in particular for stationary installations and for the actors involved in the compliance cycle, including competent authorities, operators, verifiers and national accreditation bodies. The guidance provides practical explanations, technical approaches and examples of good practice to help stakeholders apply the legal requirements set out in the Monitoring and Reporting Regulation (MRR) and the Accreditation and Verification Regulation (AVR). It aims to promote a harmonised approach to implementation, strengthen the quality and reliability of emissions data, and support transparency, accuracy and environmental integrity within the EU ETS.

Figure 12. The EU ETS compliance cycle – schematic diagram



The MRR and the AVR also include the MRVA requirements for the implementation of ETS2. To facilitate the implementation of the new system, the Commission has prepared guidance documents for national competent authorities, regulated entities and verifiers, notably the general guidance on the Monitoring and Reporting Regulation for ETS2 regulated entities, the guidance on accreditation and verification for ETS2 as well as templates for the monitoring plan, annual emissions report and verification report[81]. Other EU ETS-related guidance documents have also been updated with regard to ETS2[82].

[80] Monitoring, reporting and verification - Climate Action.
[81] ETS2: buildings, road transport and additional sectors, DG Climate Action.
[82] Monitoring, reporting and verification, DG Climate Action.

In the aviation sector, the EU was the first jurisdiction to introduce a monitoring, reporting and verification framework for non- CO_2 aviation effects, applicable since 1 January 2025. From 2027, the reporting will automatically apply to all flights from and to EEA countries. Before that year the aircraft operator can choose between the full geographical scope, the reduced scope (intra-EEA flights) or intra-EEA flights with some additional extra- EEA flights.

In addition, 2025 was the first year when allowances for emissions from maritime transport were surrendered in the EU ETS, on the basis of reported 2024 activities. Shipping companies surrendered allowances for more than 99% of surrendering requirements by the legal deadline.

Each year, operators covered by the EU ETS must surrender the corresponding number of allowances to match their emissions in the previous year. Operators must purchase enough allowances to cover their emissions. If they fail to do so, operators face a €100 penalty for each tonne of excess emissions. The €100 penalty per tonne of excess CO2 emissions (or its equivalent amount in N2O or PFCs, other greenhouse gases regulated by the EU ETS) increases every year, based on the EU inflation rate. This means that the penalty will increase a bit each year to keep pace with rising prices. Concretely, pursuant to Article 16(4) of Directive 2003/87/EC, the excess emissions penalty relating to allowances issued from 1 January 2013 must increase in accordance with the European index of consumer prices. The European index of consumer prices was replaced by harmonised indices of consumer prices (HICPs) that are calculated according to harmonised definitions for the European Union, euro area, and each of the Member States. As result, for the annual indexation of the excess emissions penalty, Member States should use the HICP[83]. The annual average index should be used but rebased to 2012.

5.2. Monitoring & reporting of emissions

5.2.1. Industrial installations and aircraft operators

The emissions' monitoring regime in the EU ETS relies on a building-block approach. It gives operators a high degree of flexibility, ensuring both cost-efficiency and reliability of emissions data. Operators may use several monitoring approaches ('calculation-based' or 'measurement-based' and by exception the 'fall-back approach'), including a combination of methods for individual parts of an installation. For aircraft operators, only calculation-based approaches are allowed, with fuel consumption being the central monitoring parameter.

The Monitoring and Reporting Regulation requires both installations and aircraft operators to have a monitoring plan approved by the national competent authority. This prevents them from making an arbitrary selection of monitoring methodologies and temporal variations. In 2025, four countries[84] (same as in 2024) continued to allow installations to use simplified

[83] Harmonised index of consumer prices (HICP) - ECOICOP ver.2 - indices and rates of change, annual data
[84] Denmark, Finland, Lithuania, Netherlands.

monitoring plans in low-risk cases[85]. For aviation, no country reported allowing a simplified monitoring plan in 2025.

Installations continued to follow legal requirements for emissions monitoring. Most used the calculation-based methodology[86] to calculate their emissions. Only 293 installations (3.4%) in 23 countries reported having measured 2025 emissions with continuous emissions measurement systems (CEMS). Of these, 236 installations used CEMS to measure CO_2 emissions, 46 to measure N_2O and 11 to measure both gases. CEMS is used most frequently in France. In 180 installations, the measured emissions also contained biogenic CO_2. Of the installations using CEMS, 197 used the methodology for most or all (>95%) of their emissions, while the other 96 used a combination of CEMS and a calculation-based methodology.

Only 12 countries reported using the fall-back approach. This approach was used for 40 installations covering approximately 2.8 Mt CO_2eq (13 more installations than in 2024 and 0.8 Mt CO_2eq higher in emissions' terms). One installation in the Netherlands is responsible for 53% of the overall emissions reported using the fall-back methodology due to its complex set-up.

Most installations met the minimum tier requirements[87] of the Monitoring and Reporting Regulation in 2025. Only 113 category C installations (96 in 2024) were reported to have deviated in at least one parameter from the requirement to apply the highest tiers for major source streams. They were located in 19 different countries (17 in 2024) and represented 20.1% of category C installations. These deviations are only authorised when the operator demonstrates that meeting the highest tier is not technically feasible or incurs unreasonable costs. Once these conditions no longer apply, the operator must improve the monitoring system accordingly.

5.2.2. Monitoring and reporting of emissions from municipal waste incineration (MWI)

By 31 July 2026, the Commission was required to assess the feasibility of including emissions from municipal waste incineration (and possibly other waste management processes) in the EU ETS. This assessment is part of the broader review of the EU ETS, for which the proposal was adopted on 17 July 2026. Since January 1, 2024, installations for the incineration of municipal waste (above the threshold of 20 MW rated thermal input) are required to monitor and report their emissions under the EU ETS. They are not, however, currently required to surrender allowances for their emissions.

[85] Article 13 of the Monitoring and Reporting Regulation.
[86] The main reason for this is that the measurement-based methodology involves significant resources and know-how, which many smaller operators lack
[87] The Monitoring and Reporting Regulation requires all operators to meet certain minimum tiers. Installations emitting more than 50 kt of CO_2 are required to meet the highest tier for major source streams (meaning more reliable data quality, while less strict requirements apply to smaller sources for cost-efficiency reasons.

20 countries (19Member States and Norway) reported emissions from combustion of fuels in installations for the incineration of municipal waste for 2025[88].

5.2.3. Monitoring and reporting of non-CO_2 aviation effects

Since 1 January 2025, aircraft operators have been required to monitor and report non-CO_2 aviation effects. The obligation covers the sulphate and soot particulate matter, water vapour, nitrous oxides and sulphur dioxide emitted by airplanes during flights. To facilitate implementation of this obligation start, until the end of 2026, the mandatory monitoring and reporting of non-CO_2 effects applies only to intra-EEA flights (including the outermost regions), as well as flights from the EEA to Switzerland and the United Kingdom. Voluntary reporting on all routes is encouraged. From 2027, the reporting automatically applies to all flights from and to EEA territory.

Aircraft operators can choose between two methods for monitoring their non-CO_2 aviation effects. Method C is the standard method, which takes into account weather and flight information, along with aircraft and fuel properties. Method D uses a simplified monitoring methodology to calculate emissions from low-emission aircraft operators, using mainly flight and trajectory information. Weather data and data on the fuel properties can be omitted in method D.

To support monitoring and reporting, the Commission made an updated non-CO_2 aviation effects tracking system (NEATS) available in April 2026. Although the first reports were due in 2026, no consolidated results for the 2025 reporting year were available when this report was finalised. The first-year reporting cycle took longer than expected due to technical and operational issues during the implementation of the MRV process.

By 31 December 2027, based on the results of the application of the monitoring framework of non-CO_2 aviation effects, the Commission will submit a report and, where appropriate, a legislative proposal to mitigate non-CO_2 effects.

5.2.4. Maritime transport

Shipping companies have been required since 2018 to monitor and report emissions in accordance with the MRV Maritime Regulation, under which companies have to provide monitoring plans, emissions reports, and verification reports, for each of the ships under their responsibility. As of 2024, they also need to submit data on a per company basis, providing an aggregated report on all their ships.

For this purpose, only one single monitoring and reporting process is required, although the data to be reported under the EU ETS may deviate, to a certain extent, from those to be reported under the MRV Maritime Regulation, e.g. regarding the scope (GHG gases, coverage of voyages), and the different applicable derogations as established by the EU ETS

[88] Not all countries in the EU ETS have municipal waste incineration capacity or installations falling within the scope of the EU ETS monitoring obligation.

Directive. In addition, companies active under the EU ETS scope must fulfil additional requirements to ensure they comply with their obligations under the EU ETS Directive (e.g. have their monitoring plan approved by the relevant administering authority, open a Maritime Holding Operator Account in the Union Registry, etc.) compared to those companies only active under the Maritime MRV scope.

In 2025, 3 427 shipping companies submitted a company-level emissions report, covering 15 660 ships. The 2025 MRV reporting cycle was the first to include emissions from offshore vessels and from small general cargo ships. Those ships reported an additional 6.2 Mt CO_2 under MRV scope but did not impact the reporting obligations of shipping companies obligated under the ETS system.

The shipping companies active under EU ETS scope reported 144.5 Mt of CO_2 under the broader MRV scope, resulting from the use of 46.8 million tonnes of fuel, out of which marine fossil fuels accounted for 98.3% of reported consumption and 1.7% benefited from zero-rating (up from 0.6% in 2024).

The reported verified emissions at company level under the MRV scope were reduced, as recorded in THETIS-MRV, to determine emissions under the scope of the EU ETS after applying the relevant rules: zero-rating for eligible fuels (2.3 Mt), ETS geographical scope limited to 50% of extra-EEA voyages (50.4 Mt), carbon capture storage and carbon capture utilisation (5 tonnes), and derogations for small islands, for public service contracts and public service obligations, and for outermost regions (4.4 Mt)[89].

5.2.5. Buildings, road transport and small industry

Since January 2025, regulated entities falling under ETS2 have been required to hold a GHG emissions permit and an approved monitoring plan for the monitoring and reporting of their annual emissions. Annual reporting of historical emissions took place for emissions released from 2024, with reports due by 30 April 2025. Annual reporting of verified emissions is mandatory for emissions released from 2025, with first reports due by 30 April 2026. For 2025 and 2026, by 30 June, the competent authorities notified emissions to the Commission both at aggregate level via the Union Registry and at regulated entity level via the applicable template. From 2027 onwards, the verified emissions will be reported via the regulated entity accounts.

From a methodological perspective, the ETS2 regulated entities must determine the emissions associated with the combustion of fuels released for consumption using the calculation-based approach. The principle of this method is the calculation of emissions by multiplying, for each fuel stream, the released fuel amount (total amount) by the corresponding unit conversion factor (to make units compatible), the corresponding scope factor (to limit to ETS2 scope) and the corresponding emission factor (to reflect emissions of non-zero-rated fuel amounts).

[89] A further 0.5 Mt were deduced following the voluntary application of the deduction for ice-class ships.

Like the existing EU ETS, the emissions' monitoring regime of ETS2 relies on a building-block approach to monitoring methodologies. For each parameter, there are different tiers with different data quality levels to be applied by the regulated entities. Where regulated entities can demonstrate that the required tier is not technically feasible or would lead to unreasonable costs, they can apply a lower tier.

To reduce administrative burden and cost, ETS2 builds on existing reporting obligations under the Energy Tax Directive 2003/96/EC and Excise Duty Directive 2020/262/EU.

5.3. Verification and Accreditation

5.3.1. Industrial installations

Article 15 of the EU ETS Directive instructs the European Commission to develop a regulation on the verification of emission reports, the accreditation of verifiers and the supervision of the accreditation. The AVR was last revised in 2025 and adopted on 18 June 2025[90].

Verifiers of emission reports under the EU ETS must be accredited by a national accreditation body (NAB) in line with the AVR, ISO 17029 and its sector specific application ISO 14065, i.e. international ISO standards that are used to accredit verifiers.

A detailed overview of accreditation and verification aspects in 2025 is included in Section 4 of the accompanying staff working document.

In 2025, the number of verifiers remained stable, with capacity limited in some accreditation scopes, especially for stationary installations, aviation and ETS2.

There were 99 accredited verifiers for stationary installations. In addition, 26 countries reported that at least one foreign verifier was active in their territory in 2025, and 6 countries reported having only foreign verifiers. This shows that the mutual recognition of verifiers among countries continues to work successfully. Verifiers' compliance with the AVR is found to be high. For 2025, 1 verifier suspensions was reported. At the same time, 1 verifier was reported to have had their accreditation withdrawn. In 4 cases, verifiers' scope of accreditation was reduced (in Poland, Germany, Denmark and France). By comparison, one suspension, no withdrawal of accreditation and two scope reductions were reported for 2024.

For stationary installations, the number of emission reports not submitted on time increased from 68 in 2024 to 98 in 2025, while negative verification opinion statements remained broadly stable, decreasing slightly from 50 to 48. Conservative estimations of emissions by competent authorities declined, from 80 to 63 cases, and the number of rejected emission reports fell from 48 to 32 cases. However, issues identified in verification reports increased slightly, from 4 807 to 4 996.

[90] Commission Implementing Regulation (EU) 2018/2067 of 19 December 2018 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council. Consolidated text: CL2018R2067EN0040010.0001.3bi_cp 1..1

5.3.2. Aviation

In 2025, there were 16 accredited verifiers for aircraft operators.

The second revision of the AVR was adopted on 18 June 2025. This revision included requirements on the verification of reports on the non- CO_2 aviation effects, verifiers' checks related to the transport of CO_2 and CCU, checks related to biomass, renewable fuels of non-biological origin (RFNBO), recycled carbon fuels (RCF), synthetic low- carbon fuels (SLCF), and checks related to alternative aviation fuels and fuels eligible for ETS support.

5.3.3. Maritime transport

As for other ETS sectors, the verifier active in ETS maritime must be accredited by a national accreditation body in line with the AVR and ISO 14065 (an international ISO standard). The verifier carries out the various activities required by the MRV Regulation to check the implementation of the monitoring plan and the data in the shipping company's reports, both at ship and company level.

In 2025, 21 verifiers were active for maritime MRV. Verifiers' compliance with the accreditation and reporting rules for maritime is found to be high. For 2024 and 2025, no verifier suspensions or withdrawal of a verifier's accreditation were reported.

5.3.4. Buildings, road transport and small industry

Article 30f of the EU ETS Directive provides that Article 15 of the Directive applies equally to ETS2. As a result, the AVR was updated in 2025 to cover the verification of emissions reports of ETS2 regulated entities and the accreditation of verifiers carrying out such verification.

From 2026 onwards, ETS2 regulated entities must submit by 30 April an Annual Emissions Report (AER) covering the previous year's emissions, verified by an independent accredited verifier. The verifier performs a strategic and risk analysis, examining the regulated entity's activities, approved monitoring plan, data flows, control systems and the methods used to determine fuel quantities, scope factors and emissions. Any identified issues must be addressed before the verifier issues its verification report, after which the regulated entity submits the verified AER and verification report to the competent authority

Accreditation of verifiers active in ETS2 verification follows the same steps as accreditation of verifiers carrying out EU ETS verification. In 2026, 61 accredited verifiers were active for ETS2.